ent of
n

Revenue Forecasts for Innovative Light Rail Financing Options

Denver Case Study

September 1983

Revenue Forecasts for Innovative Light Rail Financing Options

Denver Case Study

Final Report
September 1983

Prepared by
Ride Center
Joint Center for Urban Mobility Research
Nine Greenway Plaza, Suite 1900
Houston, Texas 77406

Prepared for
Office of Planning Assistance
Urban Mass Transportation Administration
Washington, D.C. 20590

In Cooperation with
Technology Sharing Program
Office of the Secretary of Transportation

DOT-I-83-36

NOTE: This report is one of a number of documents distributed by the U. S. Department of Transportation dealing with the potential of innovative financing approaches for transit. This report uses one option for providing transit service for a major metropolitan area as the basis for a case study analysis. Recognizing that there are a number of approaches to providing transit services to such areas, the option described may or may not be the one actually implemented by the area in question. As such, it should be stressed that the material in the report should be viewed as illustrative only, and should not necessarily be construed as a policy recommendation of any option. No endorsement of the transit option described is intended or implied, by the U. S. Government, or any of the state, regional, or local government entities involved.

Credits

This project was made possible by the U.S. Department of Transportation, Urban Mass Transportation Administration, under the direction of Mr. Charles Graves, Director, Office of Planning Assistance, and of Mr. Paul Verchinski, Senior Community Planner. The work was conducted for the purpose of assisting the Denver Regional Transportation District (RTD), under the direction of Mr. L. A. "Kim" Kimball, Executive Director and General Manager. We wish to acknowledge the assistance of the following RTD staff members in providing information on the Denver Light Rail Transit system:

Greg Jones, Legal Counsel
John Picon, Assistant Executive Director of Finance
Ralph Jackson, Director, Office of Program Analysis
Richard Thomas, Director of Transit Development
Ronald Thorstad, Manager of Planning and Design
Susan Osterhoudt, Program Analyst

The research presented in this report was conducted by Rice Center, Nine Greenway Plaza, Suite 1900, Houston, Texas 77046, (713) 965-0100.

Rice Center staff members who participated in the project include:

Robert M. Eury, Project Director
Carvel W. Glenn, Project Manager
Glenda Callaway, Senior Associate
Harriet C. Chu, Associate
Kelly Leissner-Maignaud, Associate
Kay L. Liske, Associate
Donna Milson, Associate
Ray Quay, Associate
Holly F. Ruby, Associate
Andrew J. Rudnick, Senior Advisor
Jamie L. Strong, Associate
Rose M. Torres, Associate
Heidi E. Zukoski, Associate

Table of Contents

TABLE OF CONTENTS (Continued)

Summary

The Denver Regional Transportation District (RTD) currently is examining options for financing construction of the proposed 77-mile, light rail transit (LRT) system. The purpose of this report is to estimate the magnitude of revenues that potentially can be generated by value capture techniques. These techniques include (1) lease or sale of undeveloped air and ground rights, (2) lease or sale of developed air and ground rights, (3) lease of concession space, (4) special benefit assessments, (5) tax increment financing, (6) turnkey ventures, and (7) joint ventures.

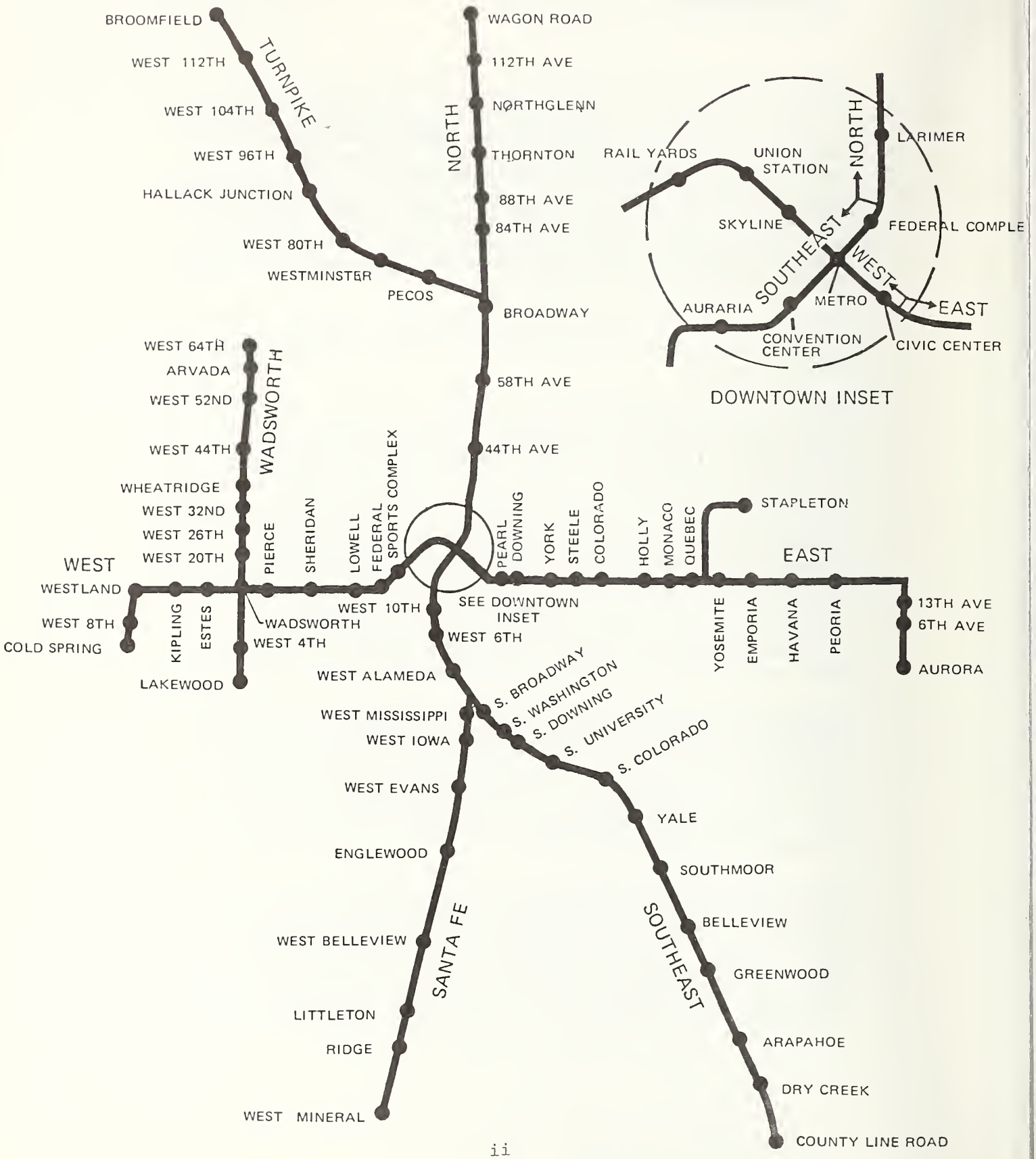
Rice Center used the following methodology to estimate the revenue potential of value capture techniques at stations along the LRT system.

Step I: Identification of Development Programs. The first step was to forecast these specific types of development (development "programs") likely to occur between 1983 and 2000 around each station site. Revenue potential of value capture techniques depends heavily on the type and value of land uses around stations. Future development, in turn, depends on real estate market conditions. Therefore, it is important to examine projected demand for specific kinds of land uses for the region as a whole and then to determine whether any of the demand will be met by development around the proposed stations. Area market studies and projections, as well as informed judgement by local real estate experts, were used to make determinations of likely development at each site.

Step II: Selection of Value Capture Techniques. The second step was to select the value capture techniques that can be applied at each station. This selection will depend on the jurisdiction's legal authorities, political receptiveness to value capture techniques, existing adjacent and surrounding land uses, and the development potential at each site as identified in the first step.

Step III: Revenue Forecasts. The third step was to forecast the revenues that can be generated by application of a particular value capture technique at a station, assuming specific types of development do, in fact, occur in the area. These forecasts involve the use of a cash flow model which has the capacity to analyze the flow of dollars on annual and cumulative bases generated by a given development program and

LRT System 3-C Alternative III Alignment



by a value capture technique over a designated term. The total revenue potential will vary with the level of effort RTD is willing to make to capitalize on real estate conditions around its stations, to accept political risk, and to pursue legislative changes that will permit more aggresive application of value capture techniques. For this reason, the range of revenue forecasts in this analysis is based on three scenarios: conservative, moderate, and aggressive. Each scenario reflects a different level of effort on the part of RTD to pursue value capture revenues. (It should be emphasized that the dollar estimates are intended only to provide RTD and other readers with background information on the revenue potential of value capture techniques associated with the proposed LRT system. More accurate revenue projections can be made by an in-depth analysis of the real estate market surrounding each station along the final LRT system alignment.)

The summary chart below presents the range of estimates of total accumulated dollars that can be generated by application of the value capture techniques for the entire LRT system. Because RTD has not selected final alignments for the entire 77-mile system, the analysis assumed that construction of the LRT system will follow option 3-C System Alternative III, one of five alternatives proposed by RTD. The estimates are based on a station by station review of the economic, legal and political feasibility of implementing each technique during the years 1983-2010.

TABLE 1
SUMMARY OF VALUE CAPTURE REVENUES 1983-2010

Scenario	Accumulated Dollars Discounted at 0%	Accumulated Dollars Discounted at 7%	Accumulated Dollars Discounted at 13%
Conservative	$ 93,726,000	$ 16,364,000	$ 3,744,000
Moderate A*	$ 687,918,000	$152,374,000	$ 50,542,000
Moderate B**	$ 597,748,000	$125,583,000	$ 40,788,000
Aggressive A*	$1,790,139,000	$384,580,000	$124,839,000
Aggressive B**	$1,633,416,000	$345,936,000	$111,160,000

*Moderate A and Aggressive A assume that there are no political or debt limitations on the revenue stream within each tax increment district, and thus 100% of the revenue stream is available for transit improvements.

**Moderate B and Aggressive B assume that only 75% of the revenue stream for each tax increment district is available for transit improvements.

A range from less than one percent to over 16% of the total LRT system cost of $2.004 billion may be paid for with value capture revenues. Clearly, value capture can help defray a portion of system cost. Moreover, increasing levels of effort on the part of RTD significantly increase potential financial benefits. The aggressive scenario yields 21 times the revenues of the conservative scenario.

Tax increment financing was found to be the most financially productive of all the mechanisms applied to station site development. Changes in state legislation would be required in order to implement tax increment financing districts for transit purposes, but the effort involved in accomplishing such a change may be well worthwhile.

The Metropolitan District mechanism is attractive for financing station development by applying an ad valorem tax uniformly over a defined area. Development rights leases and joint development projects may be financially productive in high-density areas where high per-square-foot returns can be expected. Finally, although station concessions produce only a modest income stream, they are attractive because they require little involvement on the part of RTD as a developer.

All of the value capture techniques have applicability to the Denver LRT system, and they have potential to generate revenues for RTD. Moreover, the methodology of Rice Center's analysis can be applied to other transit systems, in order to assess value capture potential in their surrounding regions.

Chapter 1
Introduction

Background

The Denver Regional Transportation District (RTD) currently is examining options for financing construction of the proposed 77-mile, light rail transit (LRT) system (see Figure 1.1). In accordance with a bill passed by the Colorado Legislature, RTD cannot build the LRT system without voter approval of a financing proposal that includes private sources of funding. RTD has prepared a number of system financing options which consider construction phasing, sales tax rate, use of debt, and private sources of funds. One RTD estimate is that the total cost of the LRT system will be $2.004 billion (1982 dollars), of which approximately $500 million will be from private sources. For this estimate, the remaining funds would include a 1% increase in the sales tax and a $400 million bond issue. RTD is evaluating the revenue potential of several mechanisms to fulfill its private financing requirement, including the use of the value capture techniques described in this report.

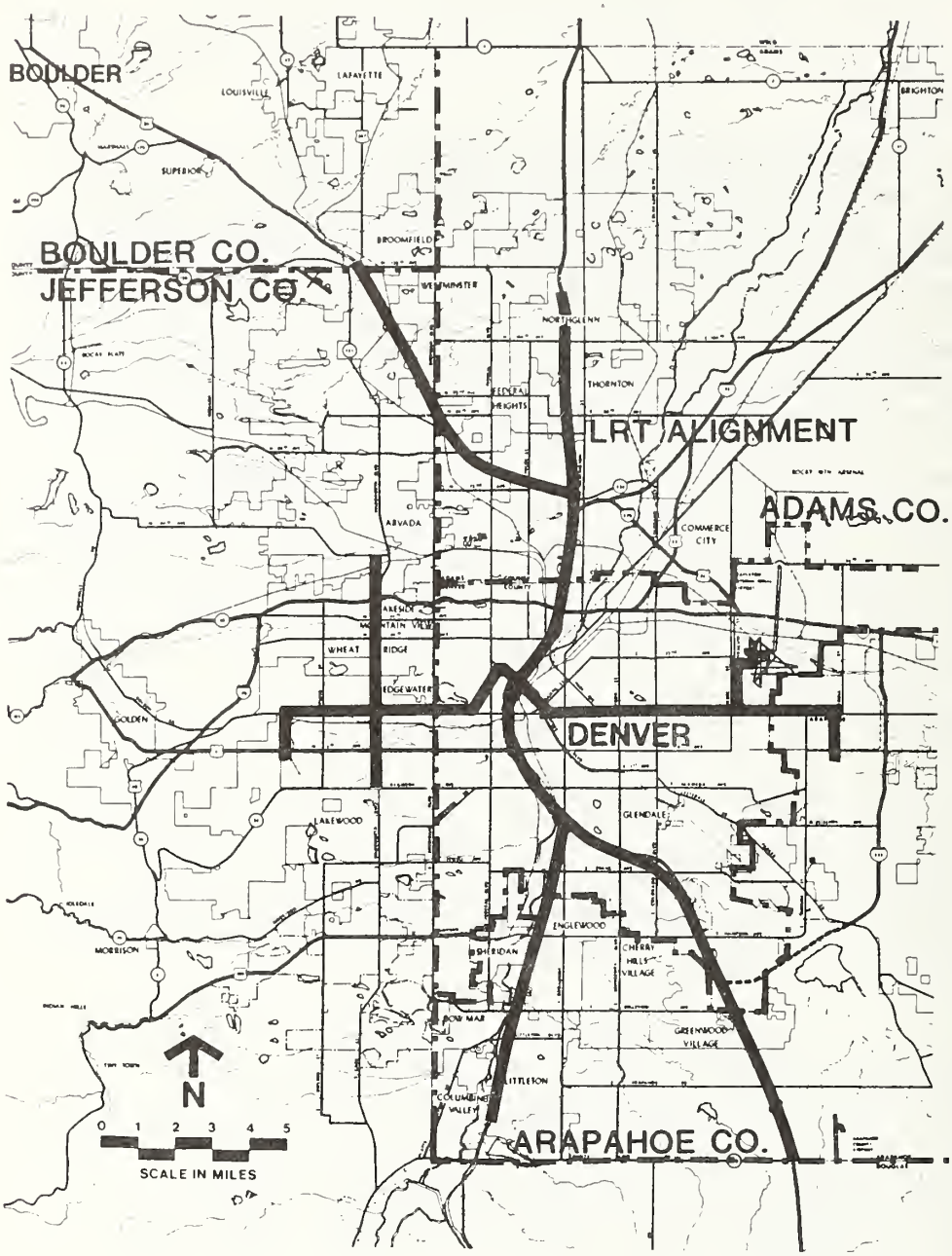
Purpose

The purpose of this report is to advise RTD about the magnitude of revenues that potentially can be generated by value capture techniques. These techniques include: (1) lease or sale of undeveloped air and ground rights, (2) lease or sale of developed air and ground rights, (3) lease of concession space, (4) special benefit assessments, (5) tax increment financing, and (6) turnkey ventures.

This report presents a range estimates of total dollars (on annual and accummulated bases) that can be generated by application of the value capture techniques to the entire LRT system. The estimates are based on a station-by-station review of the economic, legal, and political feasibility of implementing each technique during the years 1983-2010. The range of estimates was developed by examining three "scenarios," each of which assumes a different development posture by RTD (see Chapter 6).

The analysis attempts to be sensitive to future real estate markets, local community interests and conditions, and political realities affecting RTD's position on value capture techniques. It should be emphasized that the dollar estimates are intended only to provide RTD and other readers with

Figure 1.1: Proposed LRT Alignment



background information on the order of magnitude of revenues that can be generated in Denver by value capture techniques associated with the proposed LRT system. As explained below, the revenue potential of the techniques is extremely sensitive to site specific real estate market conditions, including economic activity and land uses around each station site. Moreover, this analysis summarizes the revenue potential of value capture techniques along only one of five proposed configurations for the LRT system. Once RTD selects a final route, more accurate revenue projections can be made by an in-depth analysis of the real estate market surrounding each station along this route.

The revenue potential of value capture techniques in Denver depends principally on two important factors:

- conditions of the real estate market, and
- availability of the legal authorization, or the political feasibility of obtaining the authorization, to implement the techniques.

For this reason, Chapters 4 and 5 of this report assess the legal feasibility of implementing the techniques and the economic outlook for the Denver region. Chapter 6 evaluates the opportunity for real estate development at each of the proposed 86 stations, and it identifies an appropriate value capture technique for each. The results are presented in the seventh and final chapter. First, however, the report presents a general definition of value capture techniques (Chapter 2) and a discussion of the methodology used to complete this analysis (Chapter 3).

Chapter 2

Value Capture Techniques

Concept

Value capture techniques are designed to make owners of land neighboring a rail system pay for the benefits they receive from their proximity to station stops. The techniques are based on the premise that the development of rail transit systems and stops increases the value of land on which the stations are located as well as the value of adjacent land.

The cost of the land surrounding stations frequently rises after a rail system is in operation because of benefits associated with improved accessibility to the area and related potential for retail and business activity. Storeowners can benefit from larger "pools" of customers, while businesses and industries located near a station can benefit from the reduced need to provide parking for employees and from an increased labor pool, resulting from increased accessibility. Area residents can benefit from the opportunity to travel without the use of a car. According to the demand for these potential benefits at a particular site, the value of the land often will increase. The willingness of landowners to accept an additional tax on their properties in exchange for increased property values and business activity also may rise.

The value capture techniques described in this report provide transit agencies with mechanisms for collecting payment of part of the cost of transit-related benefits to neighboring property owners. The specific descriptions below present short summaries of each technique, including a definition and a description of the major issues affecting the feasibility of implementation.

Leasing or Selling Undeveloped Air and Ground Rights

Transit agencies can lease or sell to private developers the air rights over a station or the ground rights of undeveloped or underdeveloped land surrounding a station site. In some instances, an agency may choose to acquire land adjacent to a station at pre-construction prices and, once the station is completed, lease or sell the rights at a higher price to developers who value proximity to the station.

Transit entities may recoup some of the increase in property value associated with the development of a transit station through the lease or sale of air, surface or sub-surface real estate development rights. RTD already has experience with air rights leases in the completion in 1982 of a lease agreement

with the Galbreath Company. Under the lease agreement, Galbreath is obligated to pay RTD a minimum air rights rent of $400,000 in each of the 15 years of the lease. Galbreath will also pay RTD 38% of all profit it makes, after deducting a 13.5% return on its investment.

Generally, attractive lease arrangements may be made with private sector investors in a competitive real estate market where developers will seek the differential advantage of transit station access. The amount of potential income which may be realized by a transit agency is directly dependent upon market demand for lease space, station location, existing value of land and the amount of surface or air rights which are available to lease. Consequently, a transit entity would seek to maximize its land holdings at each transit station, if it were to pursue a truly aggressive position on this value capture technique. Legally, such maximization of land holdings may require use of excess supplemental condemnation. (See Chapter 3.) Politically, an aggressive lease program may raise questions about the role of the transit entity as a land banker. On balance, the sale or lease of development rights may be defended as good business practice. Obtaining yield on assets already owned by the public entity should save taxpayers money and/or provide the revenues necessary to allow for project construction.

Lease or Sale of Developed Air and Ground Rights

Similarly to the technique described above, transit agencies can develop air or ground rights acquired for rail right-of-way, stations, adjacent land, etc. and then lease or sell the rights. In some instances, a transit agency may participate with a private sector developer in development of a project and may share in the project's equity, as well as receive a percentage of its income stream; thus creating a "joint venture" project.

This technique can generate significant revenues, particularly if the development occurs in a strong real estate market. However, it usually involves larger initial capital investments beyond the cost of land and exposes a transit agency to economic risks associated with the local real estate markets, such as declines in occupancy and rental rates. In addition, real estate development requires entrepreneurial skills that local transit agencies may not have on staff. Such expertise may be obtained through a joint venture arrangement with a private developer.

Utilization of this technique has been limited, primarily because of the capital requirement and financial risks associated with large investments in the real estate markets. In addition, public objections to governments participation in the real estate market may hinder use of this technique.

Leasing Existing Facilities (Concessions)

Transit agencies have the opportunity to generate additional revenues through the sale or lease of portions of their existing facilities by leasing concession space in their stations. Pedestrian traffic through most stations will generate adequate business to support newstands, fast food enterprises, florists, banks, dry cleaners, and other convenience oriented stores. Station design may have to be more elaborate to accommodate these activities.

This technique will generate relatively low to moderate amounts of revenue largely because a relatively limited amount of space can be leased in each station. Precise revenue potential depends on three principal factors: (1) the availability and condition of underutilized facilities or property; (2) the strength of the real estate market surrounding the facility; and (3) ridership levels. Although revenue potential may be low, agencies leasing concession space rarely encounter legal or political problems, since such concessions provide a convenient service to transit patrons. Implementation of concession development will require a policy decision on such things as food and beverages on transit vehicles.

Special Benefit Assessments

Transit agencies can levy a charge for supporting capital or operating needs against property within a district directly benefitting from the presence of the rail system. The charge must be proportionate to the benefits received. It can be a one time fee or a reccurring charge for a pre-determined number of years. Where the assessment is not a tax, the payments cannot be treated as a tax deduction by landowners. In some cases, a special taxing district may be established using the special benefits concept. Such a mechanism obviates the income tax deductibility problem of a special assessment.

Special benefit assessments can be used to pay for up to 100% of the cost of transit facilities or services within a "special assessment district." The assessments typically will be used to retire bonds used to finance transit-related improvements or services. Precise revenue potential will depend upon the cost of improvements or services, the benefit to the properties, the size of the district, and the intensity of economic activity within the district. Revenue potential also may depend on the impact of the improvements and the assessment on the relative attractiveness of rents within a district compared to rents in other places within the surrounding region.

There is current experience with the use of special assessments in Denver. Maintenance of the 16th Street transit mall in downtown Denver is being funded through a special assessment

charged to property owners immediately adjacent to the mall corridor. A 1978 revision to the city charter permitted creation of the special district. The first year assessment for the 1982-83 period is anticipated to generate $1.5 million.

Colorado law also permits the establishment of "Metropolitan Districts" or special taxing units for relatively narrow purposes, such as the construction of streets, sidewalks, and drainage improvements. Such districts are currently used in the southeast part of the Denver region in the I-25 corridor. These districts, which charge an ad valorem tax to property owners, are similar to special benefit assessment districts in that they impose a tax on properties most directly benefitted. (See Chapter 4.) In this analysis, the Metropolitan District was used as a model for assessment district scenarios.

Tax Increment Financing

Tax increment financing is a method of funding the construction of public projects from increases in property tax revenues derived from public and private investments located near the projects. A tax increment financing district is established in the general area benefitting from the improvements and a base-year assessed property value is determined. Property taxes collected on any increases in property values above the base year are dedicated to financing public improvements within the district. Property taxes collected on the base-year value are distributed to pre-existing taxing jurisdictions as usual. The revenues may be used to secure bonds for the improvements.

Tax increment financing has the potential of generating substantial revenues. The magnitude of revenues available within a given district depends upon the local ad valorem tax rate, the size of the district, the amount of development or redevelopment which occurs after the base-year, and the cost of the public improvements to be made under the development plan. Marketability of tax increment bonds is highly dependent upon investor confidence in future development within the area. If lands were sold and the development did not increase as projected, the taxing jurisdiction would have to resort to ad valorem tax revenues (from other than the increment) to retire the bond debt.

The authority to use tax increment financing in Colorado is derived from the state's urban renewal legislation. The Colorado law would need to be amended to permit financing of transportation improvements as a primary basis for urban blight. In other jurisdictions, political resistance to the creation of tax increment districts often has come from related tax jurisdictions, such as school districts or hospital districts, which rely heavily on property tax revenues and which will be deprived of additional income in the

tax increment financing districts. In some cases, this problem has been resolved by agreements among the taxing entities to share the tax increment financing revenues.

Turnkey Agreements

A turnkey agreement is a contract between private developers and transit agencies, or other public entities, authorizing the developer to deliver a newly constructed transit facility ready for occupancy. For example, a developer would build a station to meet the agency's specifications and turn it over to the transit agency for reimbursement at cost or as a donation in return for transit service at the developer's location. Turnkey agreements may save transit agencies the cost of constructing a station, in the case of a donation, or, in the case of reimbursement, reduce the costs of station construction by expediting the construction process.

Turnkey agreements serve as an appropriate financing technique for a station site where the land already is controlled by a large landowner or the station is adjacent to a large development, such as a shopping mall. In these instances, it may be desirable to allow the landowner to develop his land in conjunction with his existing or proposed real estate project. The landowner may be most willing to contribute the station on a turnkey basis in a strong real estate market where access to the LRT ridership promises significant financial return to him.

Chapter 3
Methodology

Overview

Rice Center used the following methodology to estimate annual and accumulated revenue that could be generated by various value capture techniques applied at station stops along the LRT system. The methodology can be divided into three major sections: (1) identification of development programs at station stops, (2) selection of value capture techniques, and (3) revenue forecasts. Because RTD has not selected final alignments for the entire 77-mile system, the methodology assumes that construction of the LRT system will follow option C-3 System Alternative III.*

The three major sections of the methodology, which are summarized below, entail a sequence of steps. These steps are outlined following the section summaries.

Section I: Identification of Development Programs. The first section involves forecasting what specific types of development (development programs) are likely to occur between 1983 and 2000 around each station site. Revenue potential of value capture techniques depends heavily on the type and value of land uses around stations. Future development, in turn, depends on real estate market conditions. Therefore, it is important to examine projected demand for specific kinds of land uses for the region as a whole and then to determine whether any of the demand will be met by development around the proposed stations.

Section II: Selection of Value Capture Techniques. The second section involves selecting the value capture techniques that can be applied at each station. This selection will depend on the jurisdiction's legal authorities, political receptiveness to value capture techniques, existing adjacent and surrounding land uses, and the development potential at each site as identified in the first section.

Step III: Revenue Forecasts. The third section involves forecasting the revenues that can be generated by application of a particular value capture technique at a station, assuming

*Rapid Transit System Public Transportation Plan Primary Conditions, Rapid Transit System Costs, General Alignment and Station Locations, and Schematic Corridor Profiles, Regional Transportation District, June 21, 1982.

specific types of development do, in fact, occur in the area. These forecasts involve the use of a cash flow model which has the capacity to analyze the flow of dollars on annual and cumulative bases generated by a given development program and by a value capture technique over a designated term. The total revenue potential will vary with the level of effort RTD is willing to make to capitalize on real estate conditions around its stations, to accept political risk, and to pursue legislative changes that will permit more aggressive application of value capture techniques. For this reason, the range of revenue forecasts in this analysis is based on three scenarios: conservative, moderate, and aggressive. Each scenario reflects a different level of effort on the part of RTD to pursue value capture revenues. (See Chapter 6 for more detail.)

It should be noted that the primary objective of this report has been to develop order-of-magnitude forecasts of revenue potential associated with the application of value capture techniques in Denver. Consequently, it entailed a systemwide analysis of all 86 stations on the proposed 77-mile, light rail system. A more accurate revenue projection would involve an in-depth analysis of the real estate market around each stop and of the likelihood that a particular development program would be built. Moreover, in developing the total system, RTD most likely would use a combination of value capture techniques from each of the three scenarios developed in this analysis.

The outline below describes in more detail the sequence of steps necessary to complete each section of the methodology for determining value capture potential. While these steps pertain directly to RTD's interest in the LRT system, they should be transferable to other settings and related transit development opportunities. All of the steps require making value judgements regarding the feasibility of development. Expertise in real estate appraisal, development, and design are brought to bear on each station in order to establish an informed opinion on development potential at each site.

Step 1: Identification of Development Programs at Stations

A. System Background

Task 1: Meet with RTD staff and review documentation to obtain the following information:

a. Proposed alignment of the system in each corridor, including alternatives being considered.

b. Proposed station locations, including degree of certainty of specified sites.

c. Current and potential RTD land holdings at station sites.

d. Status of past or current transactions between RTD and landowners. (For example, RTD already had started discussions with the owner of Northglenn Mall.)

e. Ridership estimates for each corridor.

f. Development schedule for the system and for each corridor. (Use of RTD's financing option, C-3 Alternative III, provided an assumed schedule for the purpose of this analysis.)

g. Financing plan, including station costs, total system costs, and the variety of funding sources being considered.

B. Community Background

Task 2: Interview major developers and local leaders to determine the following:

a. A sense of the real estate market -- what areas are "strong" real estate markets; what developers are active in marketing; where are the growth areas; and what are the constraints to development?

b. A sense of land holdings the power structure(s) -- who are large landowners in each corridor?

c. Image and importance of RTD and its proposed system -- what views of RTD and its plans does the development community hold?

Task 3: Obtain local plans and other pertinent information affecting development potential at station areas.

a. Meet with the Denver Regional Council of Governments representatives to obtain information and documentation about the comprehensive planning process and the specific plans adopted

for affected jurisdictions. For example, review the document which discusses "designated regional activity centers," and the current and future plans for these special areas, some of which are located on the transit corridors.

b. Obtain and review zoning maps of the station areas.

c. Meet with RTD staff to discuss community attitudes toward development of the station areas, including "war stories" of past and current re-zoning cases. (For example, densities are controlled in some locations by "mountain view ordinances," in addition to standard zoning restrictions and procedures.)

C. Development Trends

Task 4: Conduct corridor surveys by driving through each, noting the following:

a. Overview of the region and its growth characteristics, including general age of areas within the corridors, evidence of new development or redevelopment activity, land use mixes, densities of development, and typical development prototypes.

b. Current land use at proposed station areas.

c. Likely trends in land use at station areas, as evidenced by developers' holdings (Task 2), recent construction activity, "good" locations, and changes which might alter prevailing trends (such as new freeway construction).

D. Case-Building Assumptions

Task 5: Obtain forecasts for the regional economy and analyze their implications for concomitant land uses.

a. Obtain, from the Regional Council of Governments and other agencies forecasts of the regional economy,

employment, and population. (In Denver, employment forecasts were available for major industry groups.)

b. From population forecasts, derive housing demand.

c. From employment forecasts, derive office space demand using the following:

1. Number of employees, by major industry group.

2. Conversion factor of number of office workers as a percentage of total employees, for each industry group (derived from Houston data and checked against national data).

3. Conversion factor of office space per office employee (derived from local data and compared with accepted rules-of-thumb).

4. Recent trends in office construction and absorption, from published real estate reports and interviews with local brokers.

5. Current estimates of existing office space market -- occupied space, vacancy rates, and projects which are under construction or planned.

6. Sub-regional office construction and absoprtion data, from published sources and interviews with local brokers.

d. From office space forecasts, derive hotel room demand, using Houston data for business-oriented hotels, and current Denver hotel inventory.

Task 6: Develop "programs" which represent the amount of office space and the mix of land use which might be built at each station. The programs take into account the following information:

a. Market potential in the immediate area (Tasks 2, 4, and 5)

b. Zoning and density constraints (Task 3)

c. RTD land holdings (Task 1)

NOTE: At many of the stations, more than one development prototype might apply. Typically, the "highest-and-best" use was tested, within the constraints of the value capture scenario (see Task 9d).

Step II: Selection of Value Capture Techniques

Task 7: Select value capture techniques which might apply to the Denver LRT stations.

a. From past experience, develop a list of techniques which includes development rights lease, development rights sale, space lease, turnkey station development, special benefit assessments (and Metropolitan Districts as a special variation applicable in Denver), and tax increment finance districts.

b. Review these techniques with RTD staff, and determine which, if any, are worthy of testing at specific station stops.

Task 8: Conduct research to assess the legality of each of the techniques, if applied by RTD. (From a review of the RTD enabling legislation, it was clear that simple purchase, sale, or lease of property for transit purposes was allowed. The important legal issues, therefore, were the use of eminent domain powers to acquire supplemental property for value capture, the ability to create special taxation districts for transit purposes, and the use of tax increment financing.) The following sources were used in developing legal memoranda on these issues:

a. RTD counsel, through both conversations and written legal opinions.

b. Legislation related to RTD and its financing, urban renewal, and tax increment financing.

c. Case histories in Colorado and other jurisdictions.

Task 9: Develop value capture scenarios which tie together the 86 stations, their development potential, and techniques applicable to them.

a. Assign value capture techniques to each station, matching development types and station context to appropriate techniques. For example, "space lease" was paired with "concessions;" "development rights lease" (or "sale") was paired with development on the station site; and tax districts were applied where on-site development was minimal, but adjacent development was expected to benefit.

b. Define three systemwide value capture scenarios: "conservative," "moderate," and "aggressive." These three scenarios were used to test the range of financial returns which might be achieved under a variety of conditions and RTD policies. Generally, the "conservative" approach would be feasible to implement today. The "aggressive" approach would entail considerable political risk and legislative changes. The factors used in defining the three scenarios were the following:

1. Constraints of tax increment financing (under current or potential new legislation).

2. Public acceptance of more extensive use of special assessment (or Metropolitan) districts.

3. RTD's willingness to participate in development projects.

4. Community acceptance of zoning and/or density changes.

e. Categorize the development/technique combinations according to the three overall scenarios. That is, for the

"conservative" scenario, select those land use/technique pairs which apply at each station; and repeat for the other two scenarios.

Task 10: Review the method, data, assumptions, observations about Denver and the corridors, station development types, and the three value capture scenarios with the following individuals:

a. RTD planning staff, to verify system data and interpretation of local zoning and community attitude issues, and to comment on Rice Center's assessment of station area development potential.

b. RTD counsel, to judge whether the mechanisms are assigned properly to the three scenarios.

c. Local real estate experts, to verify economic and cash flow assumptions, data, and findings.

Step III: Revenue Forecasts

Task 11: Acquire real estate financial data for input to the cash flow model. The cash flow model (see description in Appendix A) requires information about direct and indirect construction costs, land costs, vacancy rates, rental rates, and operating costs for 27 different land use prototypes. This information was obtained or derived from the following sources:

a. Rice Center files developed in 1976 with the original model and subsequently updated.

b. Industry standards derived from a number of Rice Center analyses.

c. Local developers, brokers, leasing agents, and property management companies.

Task 12: Project annual cash flow to be derived from each station development/technique package under each of the three value capture scenarios (see Appendix A).

a. Set up the station cases to be run. Organize the input data for each combination, including:

   1. Development type;

   2. Value capture technique;

   3. Schedule of development and disposition of property; and

   4. Real estate financial data.

b. Run the cash flow model for each of the cases.

c. Review results for "reasonableness" of rates of return for each development program.

d. Refine input data, checking assumptions.

e. Re-run the cases as necessary.

Task 13: Compile the individual station cash flow results into a systemwide total for each of the three value capture scenarios. Report annual cash flow and net present worth of investments and returns.

Task 14: Generalize the discussion to a systemwide level, equating increments of revenue to the use of such mechanisms as Metropolitan Districts, special benefits assessments, or tax increment finance districts and analyze the required changes.

Chapter 4

Legal and Policy Perspective

Introduction and Background

Financial techniques identified as most appropriate for support of future fixed-guideway development include (1) the lease or sale of development rights, which frequently involves the acquisition of property by eminent domain powers; (2) the creation of special taxation districts; and (3) the use of tax increment financing. The identification of the most valuable techniques has resulted from significant discussion with RTD legal counsel; from review of past and existing enabling legislation; from research conducted in development of the Joint Center's Guide to Innovative Financing Mechanisms for Urban Mass Transportation; from recent law cases; and from a realistic appraisal of the State of Colorado's and the City of Denver's land use policies.

Lease/Sale of Development Rights

The laws governing the lease and sale of air rights techniques consist of a combination of Colorado state law, Denver's charter and ordinances, and national case law used in instances in which Colorado's laws do not address particular points. Since many of the financing techniques which RTD proposes to use deal with the acquisition and disposal of real property and real property rights, Colorado law on public acquisition of land is critical. One of the most important issues in this area is the power of public agencies -- like RTD -- to acquire property by eminent domain (condemnation). Even if the power of eminent domain is not used often, as is RTD's expressed policy, the option of using this power cannot help but increase substantially the bargaining position of RTD as it acquires land for rights-of-way and rail stations. While RTD clearly has very broad eminent domain authority, it still must exercise this power only for "public use/purpose." While public transportation would seem to qualify as a "public purpose," it is not entirely clear that condemnation of land for other than immediate, site-specific station use by RTD will withstand court review. Therefore, what is essential to this analysis is whether related joint development associated with land condemned for station development constitutes a "public use" consistent with "public purpose."

The proposed public/private relationships implicit in some value capture techniques raise questions of public use. For

example, how can a public body condemn private property from one party, only to turn it over for use by another private party? While courts -- including the U.S. Supreme Court -- generally have approved such public "conduit" transactions in numerous redevelopment/slum clearance rulings, these have been recognized as unique cases. Critical to any such public/private property development is specific statutory (i.e., constitutional, home rule charter, etc.) declarations that the proposed condemnation is for a public purpose.

Therefore, jurisdictions are split over whether the acquisition of property for "public purpose/public use" is a judicial or a legislative function. This question is decided by state supreme courts. The United State Supreme Court generally has deferred to the state court decisions on the Fifth Amendment taking issue, whether private property forcibly taken and paid for is for public use. [See P. Millspaugh, "Eminent Domain: The Emerging Government/Business Interface," 59 University/Detroit Journal of Urban Law, 167 at 172-73 (1982).] The question may be moot in Colorado, since Colorado is one of five states which defers the "public use/purpose" question to its state courts by state constitution*. However, while the Colorado courts clearly have emphasized they intend to continue to interpret "public purpose" as required by the state constitution [Potashnik v. Public Service Commission of Colorado, 247 p. 2d, 137 (195 at 139-40)], the Colorado Supreme Court has taken so far a relatively broad view of interpreting the law, declaring that the court should have a "degree of elasticity capable of meeting new conditions and improvement and the ever-increasing needs of society." [Larsen v. Chase Pipeline Co. 514 p. 2d 1316 (1973).]**

Once it is clear the public purpose issue is one for the judiciary, it is useful to examine the test the Colorado Supreme Court has adopted when faced with a condemnation which benefits private parties as well as the public. Traditionally, courts have dealt with the issue in terms of "primary" versus "secondary" incidental benefit. Thus, as long as the public benefit is primary and the private benefit is secondary, or incidental, the court will tend to uphold a condemnation

---

*The other four states are Arizona, Missouri, Mississippi, and Washington.

**Other cases indicate that Colorado follows a national trend in permitting condemnation of private property for purposes of conveying it to other private parties in furtherance of an urban renewal scheme. [Rabinoff v. District Court 360, P. 2d 114 (1961)].

(Millspaugh, op. cit., at 173). Colorado courts appear to use the same test [Rabinoff v. District Court, 360 P 2d 14 (1961)].

The degree to which a state Supreme Court might uphold an exercise of eminent domain using a "primary versus secondary/incidental" test is evident in a series of state supreme court cases from across the country.

The most current example is the Michigan case of Poletown Neighborhood Council v. Detroit, 304 N.W. 2d 455 (1981), in which the Michigan Supreme Court upheld the compulsory acquisition of an entire neighborhood, including hundreds of homes and businesses, for the purpose of clearing a 465-acre, new factory site for General Motors Corporation.* The "public use/purpose" was identified as the creation of jobs and the prevention of further economic decay, as set forth in the Michigan Economic Development Corporations Act. Despite the enormous cost to Detroit for site acquisition, clearance, preparation, and relocation of residents ($200 million) compared to the cost of the site to General Motors ($8 million), and despite the obvious commercial advantage to General Motors, the Michigan Supreme Court held that the project sufficiently met a "public use/purpose". Further, since the project caused a general benefit to the public, it did not amount to a condemnation of private property for private use, which is forbidden by the Michigan Constitution (Article 10.2).**

The state of Washington, which previously appeared to strongly favor such public/private verification via eminent domain, seems to have shifted its approval. In In Re the Westlake Project [638, p. 2d 649 (1981)], the Washington Supreme Court has changed its stance previously indicated in In Re Port of Seattle [1195 p. 2d 327 (1972)]. In the latter case, the Port of Seattle sought to condemn land for lease to private parties for airport storage, and the court agreed on the basis of express statutory authorization. In Westlake, Seattle proposed to condemn land for public open space and for lease to private parties for retail shopping in an effort to forstall the decay

---

*Mich. Comp. Laws Ann. 125, 1601-1636 (1976).

**See Millspaugh, 59 University of Detroit Journal of Urban Law, 167 (1981) for a thorough discussion of this case.

experienced by the retail "core" of other cities.* The Washington State Constitution expressly provides (not only) that whether a use is public is a "judicial question" but also that it shall be "determined as such, without regard to any legislative assertion that the use is public" (Art. 15 16). (To this extent, it goes somewhat beyond the Colorado Constitution.) In one of the toughest standards ever applied to a major public-related "taking" of land, the Washington Supreme Court held that even though the Westlake project as a whole was in the public interest, it did not constitute a public "use."

> "If a private use is combined with a public use in such a way that the two cannot be separated, the right of eminent domain cannot be involved.
>
> "Therefore, when the purpose of a proposed acquisition is to acquire property and devote only a portion of it to truly public uses, the remainder to be rented or sold for private use, the project does not constitute a public use."

Recent case law and Colorado statutes confirm that the issue of public use/purpose in a condemnation action is one for the judiciary to decide. It is also clear that the test of "primary" benefit to the public versus "secondary" private benefit will be used by the Colorado courts in determining the appropriateness of condemnation when related private development is an intended partial use of the subject property.

The court noted that Colorado, inter alia, had a constitutional provision similar to that of Washington concerning the judicial nature of the public use question.

Accordingly, RTD's ability to exercise eminent domain to acquire property beyond that specifically required for station development must be linked to a clear public "purpose" (e.g., pedestrian bridges or retail concessions which enhance the effectiveness of RTD's ability to serve the public).

---

*The Westlake project is essentially a massive joint development project in which Seattle was obligated to acquire land and sell or lease it for 99 years for a variety of public and business uses, as well as to build or repair most of the necessary infrastructure improvements. Included also were the lease and sale of development rights.

Metropolitan Districts and Special Districts

To implement public transportation improvements, Colorado voters may choose to establish Metropolitan Districts. A Metropolitan District is defined as a special district which provides two or more of the following special services: fire protection, mosquito control, parks and recreation, safety protection, sanitation, street improvement, television relay and translation, transportation, and water.

The authority to establish Metropolitan Districts comes from the Colorado Special District Act [H.B. 1320 (6/19/81)], and such districts are the only type of special district which can be formed under state law specifically to provide transportation services. The legislature authorizes the formation of special districts, as opposed to metropolitan districts, for a single purpose such as fire protection, hospital service, parks and recreation, sanitation, water or water sanitation.

The following discussion of tax increment financing and related case law adds legal precedent for the use of Metropolitan Districts to assist RTD in future station development. The legislature authorizes that special Metropolitan Districts can be formed to serve a public use and to promote the health, safety, prosperity, security, and general welfare of its residents. The Special District Act delineates the procedures to form and govern special districts, the boundary requirements, and the general and fiscal powers such districts may exercise. Local government must maintain a current file of special districts. The use of Metropolitan Districts has yet to be tested in the Colorado court system.

The creation of Metropolitan Districts can assist RTD in generating funds to support future station development, related linkages, and the maintenance of them. Denver already has several successful established Metropolitan Districts along its I-25 Corridor, and their close association with the development of transportation infrastructure provides a strong, positive precedent for the use of such districts to support future fixed-guideway station infrastructure and maintenance.

Special districts are formed with voter approval and are governed by an elected board. The districts may be totally or partially inside or outside an existing municipality or county, and they may contain noncontiguous tracts of land, although they are designated to avoid the duplication, overlapping and fragmentation of services and taxing powers. To establish a special district, the following actions must be taken:

- County commissioners must approve a proposed service plan.
- District court must approve a petition of organization.
- Voters must approve the organization of the district and must elect its board.

In order for a special district to be formed, it must have a service plan. The plan establishes the need for the proposed service, the absence of adequate provision of the service by other entities, the financial capability of the proposed district, and its conformity with general master planning of the area. The plan must include a map of the proposed district's boundaries, an estimate of the district's population, the assessed valuation of the land within the district, a description of the proposed improvements (including a preliminary engineering survey), an estimate of the improvement costs, and the proposed indebtedness. The Board of County Commissioners then holds a public hearing to review the service plan and receives the recommendations of the county or regional planning commission. The Board of County Commissioners of each county with territory in the proposed district must pass a resolution approving the creation of the Metropolitan District.

Proposers of the district then file in the district court a petition for organization which includes the service plan and resolution of approval. The petition must be signed by at least 10 percent, or 100, of the taxpaying voters in the proposed district, whichever is smaller. Upon court approval of the petition, voters approve or reject the organization of the district and elect five or seven directors who, after the original term, serve a four year term.

A special district is a quasi-municipal corporation with general powers to enter contracts, borrow money, acquire and dispose of property, and construct, operate, and maintain improvements. Metropolitan Districts also have the power "to establish, maintain, and operate a system to transport the public by bus, rail, or any other means..." However, to operate such a system in a county or city already empowered to provide public transportation, the district must enter into a contract with the other political jurisdiction.

The fiscal powers of special districts include the power to tax and to issue bonds. A district can levy and collect ad valorem taxes on all taxable property and specifically can make additional levy to meet bond interest and maturity payments. A district can issue two types of bonds, both of which require board action: negotiable coupon bonds and revenue bonds. Negotiable coupon bonds will be due either annually or semi-annually commencing not later than three years and extending not more than 20 years from the date. Revenue bonds may also be issued by board decision. The issuance of these bonds will not constitute part of the special district's debt or charge against the district's general credit or taxing powers.

Voters must approve the bonds whenever the proposed commitments of the district require the creation of indebtedness above 1-1/2% of the assessed value of taxable property. The proposition to voters must include a declaration of public interest, purpose for and cost of improvements and terms of the bonds.

Tax Increment Financing

Tax Increment Financing is a means by which local governments can fund improvements in and the redevelopment of blighted areas. Increases in property tax revenue resulting from the improvements are used to finance the improvements, thus allowing the redevelopment to pay for itself.

The financing of the improvements is accomplished by freezing the valuation of property within the designated area at a base level. Throughout a "freeze" period, the ad valorem taxes of all taxing entities in the area derived from increased property value above the base level are put into a special fund. This fund is used to repay bonds issued to finance the public improvement projects, or, in some instances, to pay directly for the improvements. Individual taxing entities continue to receive the base level tax revenues. After redevelopment costs are paid, the designated blighted area is dissolved. Thus, all jurisdictions ultimately benefit from the increased property values and increased tax revenues resulting from the redevelopment.

Tax increment financing has been applied successfully to many redevelopment efforts. For example, the city of Portland issued $10 million in 1978 to help finance its Waterfront project. The taxable value of property in a Detroit tax increment zone nearly doubled in four years (1977-1981) and generated $12 million in tax increments.

The authority to use tax increment financing in Colorado derives from the state's urban renewal legislation. This legislation established the criteria that a local jurisdiction must meet to designate an urban renewal area and to create an urban renewal authority. It defines the authority's powers and the criteria for the preparation and implementation of an urban renewal plan. A local urban renewal plan may, in turn, authorize the use of tax increment financing.

The state law regarding urban renewal provides for the following:

- For a local government to establish an urban renewal area, 25 registered voters must file a petition, a public

hearing must be held, and the local governing body (e.g., city council) must adopt a resolution which declares the following:

- Blighted/slum areas exist in the municipality, and they threaten the public welfare;

- Development of these areas is required for the public good; and

- It is in the public interest to create an urban renewal authority.

o The boundaries of the urban renewal authority must be the same as those of the municipality.

o The mayor must appoint five to 11 commissioners to act as the authority. The commissioners first appointed have term schedules in which the term of at least one expires each year. Thereafter, the term of office is five years.

o The local governing body must approve the authority's redevelopment plan before any projects are undertaken. The plan must do the following:

- Conform to the overall redevelopment plan of the municipality;

- Afford private enterprise maximum opportunity to redevelop the area; and

- Provide feasible methods of relocation as required.

The Colorado legislation states that an urban renewal plan prepared by an authority and approved by a local governing body may authorize the use of tax increment financing. Specific provisions regarding the use of this mechanism for redevelopment in Colorado are as follows:

o The base property valuation is set as the most recent valuation prior to approval of the urban renewal plan.

o Taxes above such base amounts are allocated to a special fund of the authority to pay principal and interest on urban renewal bonds.

o Once the bonds are retired, no further allocations to the fund will be made.

o The tax allocation (tax increment financing) scheme will not continue for more than 25 years.

The Colorado urban renewal law mentions specifically transportation issues in two instances. It cites transportation problems as one of the negative effects or "menaces" to the public caused by a blighted area. Such an area "aggravates traffic problems, and impairs or arrests the elimination of traffic hazards and the improvement of traffic facilities." Clearly a legitimate goal of redevelopment would be to correct such a situation. The law also states that an urban renewal plan must demonstrate its own "relationship to definite local objectives respecting appropriate land uses, improved traffic, public transportation . . . and other public improvements."

The case of Denver Urban Renewal Authority v. Byrne (10/27/80) is extremely important as a confirmation of the ability to use tax increment financing in Colorado to support public related projects. The Denver Urban Renewal Authority (DURA) prepared a plan for the development of the "West Colfax Urban Renewal Project" which was approved by its Board of Commissioners and the City Council. DURA approved the issuance of $2.1 million in bonds to finance the project, and DURA and the council approved a cooperative agreement designating the bonds as "tax allocation" bonds. As such, the bonds would be repaid from revenues derived from the incremental valuation of property in the project area. The incremental valuation would represent the valuation subsequent to the approval of the plan. When all the bonds were retired, no further allocation to the DURA fund would be made. The city auditor refused to sign and register the agreement.

This case, and a similar one heard by the Indiana Supreme Court, raise two main categories of issues regarding the constitutionality and legality of tax increment financing: that of general public purpose and possible abuses of legislative power and that of more specific fiscal abuse.

1. The Public Purpose and Powers of Government

   Three issues relate to the propriety and powers of special taxing districts:

   a. Is power improperly delegated by the legislature to the designated special areas when tax increment financing is used to accomplish local public improvements?

      The plaintiffs in the Indiana suit claim the powers accorded to redevelopment commissions go beyond what is appropriate for special taxing districts and claim the commissions must be designated as separate municipal corporations. They cite that it is inappropriate for the commissions to establish

allocation areas, freeze assessed property value, identify blighted areas, acquire property, and issue tax allocation bonds payable from incremental taxes.

The Colorado Supreme Court did not find that the redevelopment commissions have undue powers, stating, "...The power to issue special tax allocation bonds is...only a change in form and not in substance, as redevelopment commissions have always had the power to issue special taxing district bonds. The legislature has properly exercised its power to allocate and distribute incremental taxes in such a way that each benefitting public body will bear a share of the costs of public improvements...."

In the Denver case, the court ruled that the tax allocation financing scheme does not improperly delegate power to levy taxes and commit municipal funds to DURA and that the legislature has not illegally delegated power to a non-elected, non-representative board.

The Colorado court stated that "urban blight is a matter of both statewide and local concern," and that "the local governing body must concur with an urban renewal authority's proposed project" before it can be started. The court affirmed, "DURA has not interfered with Denver's right of self government. Rather, Denver has determined itself...whether to approve the plan...."

b. Are the rights of taxing jurisdictions violated and are jurisdictions denied monies to which they are entitled, when tax increments are allocated to specially designated districts?

The Colorado court dismissed the city of Denver's claim that it is losing a portion of its ad valorem tax revenues to DURA. It found that Denver does not lose the benefit of any tax revenue which it would be receiving otherwise, stating, "The portion of tax revenues allocated to DURA represent the amount generated by virtue of increased property valuation which would not have existed but for the project."

The Indiana court made similar rulings regarding claims that diverting funds from the overlapping taxing districts to the Department of Redevelopment violates federal and state rights of equal protection and due process. The court affirmed that "the legislature has found that the redevelopment of blighted areas is a necessary public action." The court determined the following:

- Tax allocation financing is a sharing of funds among overlapping taxing districts to accomplish a public purpose which eventually will benefit all of them.

- The classification of taxpayers in these statutes is not arbitrary. It furthers the legitimate public purpose of redeveloping a blighted area, of having the project pay for itself, and of spreading the cost among jurisdictions which benefit from the improvements.

- The overlapping taxing districts are not being forced to relinquish revenues to which they would be entitled otherwise. If the redevelopment projects were not undertaken, there would be no increased assessments and resultant increased revenues; the taxing authorities would be completely without the additional revenue.

- Taxpayers in the overlapping taxing units eventually will share the benefits of the higher assessed values in the redevelopment area.

c. Are certain groups illegally benefitting from redevelopment activity undertaken in the name of "the public good?"

The Colorado Supreme Court stated, "There is a strong public purpose served by urban renewal projects. Accordingly, the fact that private interests are indirectly benefitted does not render the plan unconstitutional."

The court noted, "...owners of property within the project area pay the full ad valorem taxes otherwise applicable.... It is true that a portion of the taxes will be used to retire the bonds issued by DURA to finance the project to which the owner-developers will be indirect beneficiaries. We do not find this, however, to be a pledge of credit to the owner-developers."

Similarly, the Indiana court found the fact that developers may be able to obtain property at lesser costs in redevelopment areas does not result in the granting of special privileges in violation of equal protection guarantees. The court stated, "We have clearly held that types of municipal financing are not unconstitutional merely because they grant privileges which are not available to all."

2. Fiscal Powers

Three issues relate to the specific fiscal nature of the tax increment financing option:

a. What is the nature of the debt incurred by tax allocation bonds, and what debt restrictions apply to them?

Those who challenge the legality of tax increment financing claim it is a "devious" and unlawful way to avoid city and/or state debt limitations.

The Colorado Supreme Court found the obligation created by the bond issuance is solely that of the urban renewal authority. Tax allocation bonds do not represent city obligations and are not subject to city debt limitations. The court stated, "...the tax allocation and bond financing scheme is carefully devised so that the monies which will be utilized to retire the bonds would not otherwise have been available to Denver for its general revenue purpose."

Likewise, in Indiana the Supreme Court established that:

- Tax allocation bonds do not constitute part of the debt of the city or any governmental sub-division and, therefore, are not subject to state debt limitation provisions; the bonds are the debt of the special taxing district only.

- The original taxing power of the municipality is not changed with the issuance of tax allocation bonds. If the value of property does not increase within the allocation area, the bonds will not be repaid.

b. Are uniform and equal taxation requirements violated?

In Indiana the Supreme Court found as follows:

- Tax allocation financing does not change the basic rate of assessment, and all taxpayers within each taxing unit continue to be taxed at a uniform rate based on uniform valuations.

- Uniformity clauses aim to avoid discriminatory assessment and do not apply to legislative expenditure decisions.

- The legislature's authorization of more frequent assessments in a redevelopment area is reasonable, and ensures prompt realization of incremental values and increased tax revenues to meet the debt service on tax allocation bonds.

In the Denver case, as well, the court found no violation of uniform taxation requirements. The fact that a portion of the tax levy goes to DURA to retire bonds and a portion goes to the other taxing entity does not constitute a violation. Uniform taxation provisions do not require equal distribtuion of tax revenues; they require only that the tax be uniform on the same class of property.

c. Does tax increment financing limit a municipality's credit previously pledged to support repayment of its general obligation and, thereby, violate federal and state constitutional law?

Both the Indiana and Colorado Supreme Courts, in almost identical language, found an impairment of contracts does not occur, and that there is no loss or limitation of revenues available to back financial commitments. The Indiana court stated, "the same general tax revenues previously available to the other taxing districts will likewise be available after the plan is operative." In the Colorado case, the court found, "the ad valorem tax revenues previously available for repayment of Denver's general obligations will likewise be available after the plan is adopted and the tax allocation scheme is operative."

Conclusions

The three options assessed here are legally and politically feasible within the constaints described. The use of Metro Districts is firmly established, and this technique was applied in this analysis as a form of special benefits assessment. Tax increment financing may be used to support publicly related projects; however, since a change in legislation is required to use this technique in an area which is not blighted, it was applied most frequently as an aggressive approach, assuming RTD would pursue required legislative changes. Transfer of development rights through sale or lease was applied in many cases, with the caution that condemnation of property for acquisition by RTD requires that the sale of rights be directly linked to a public purpose.

Chapter 5
Regional Overview and Demand Forecasts

In order to determine the viability of development at individual LRT station sites, a broader assessment must be made of economic conditions in the Denver region. The Denver metropolitan area continues to be one of the few regions in the country with relatively positive growth prospects. While effects of the nationwide recession are evident, development in the area continues at a moderate rate. Moreover, ongoing improvement is projected as lending rates decline, and as the local and national economic upturns continue.

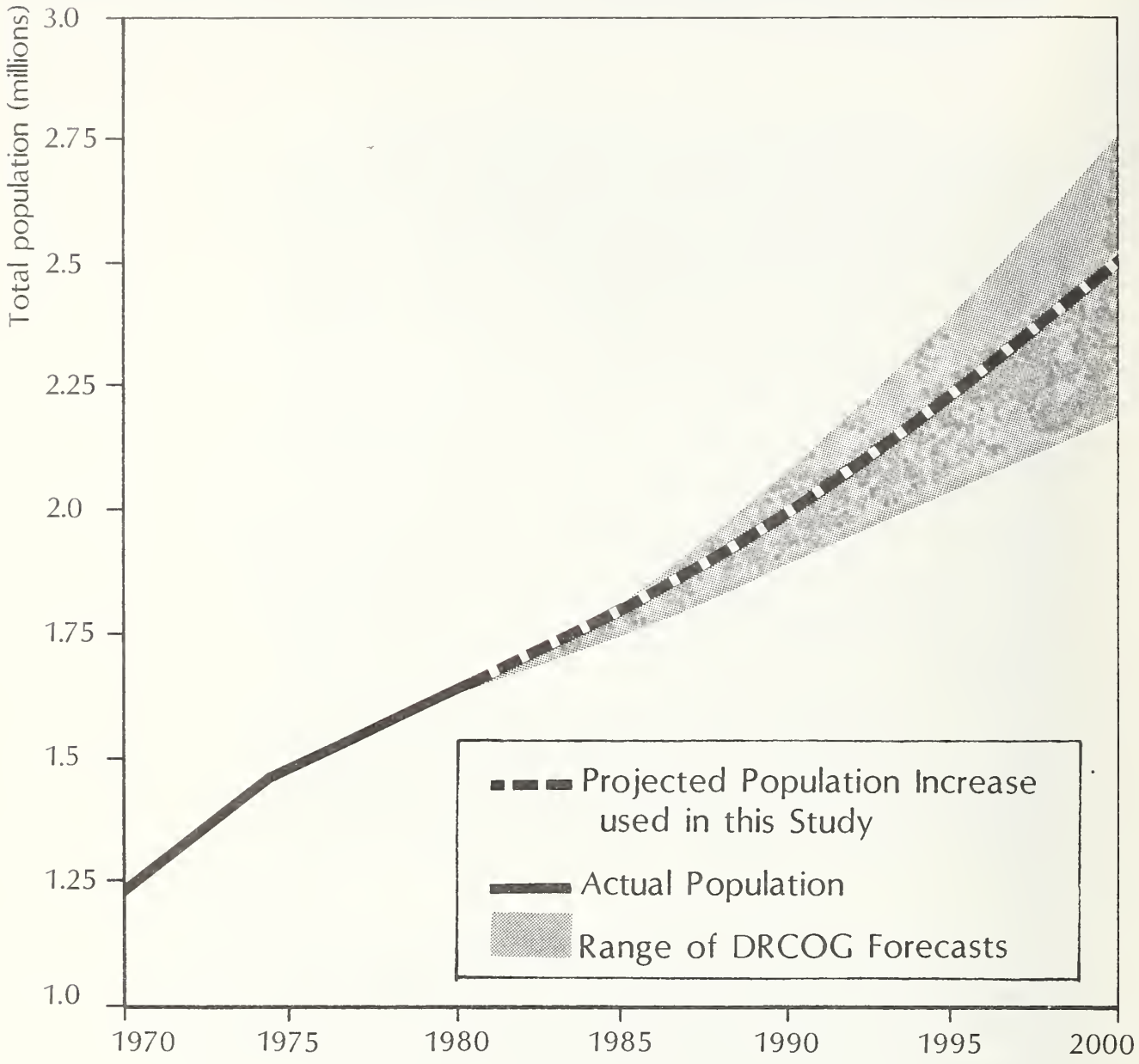
This is important, because the feasibility of individual development projects depends on the economic strength of the area as a whole. Accordingly, regional population and employment forecasts have been used in this analysis to project demand for all types of development. Office and retail space demand were of greatest importance to this analysis, because the land uses underlying those demands seem most compatible with other land uses expected at LRT station areas. However, some stations also include a residential or hotel/motel component.

To derive demand forecasts, several published sources were used. Information was obtained from Denver Regional Council of Governments (DRCOG) and the Denver Chamber of Commerce. Statistics were also obtained from Frederick Ross Company and Coldwell Banker real estate division, as well as Black's Research Service. Specific reports are cited in Figures 5.1, 5.2, and 5.3.

Regional Population, Employment, and Land Use Forecasts

The population and employment forecasts used in this study are one of six developed by the Denver Regional Council of Governments (January, 1982). These projections placed a limit of 30,000 on the absolute level of migration into the area, and, therefore, represent a mid-range forecast. As shown in Figure 5.1, population is projected to grow 70% from a 1980 base of 1.47 million to a year 2000 total of 2.51 million. Employment is expected to increase 75% from a base of 0.87 million in 1980 to 1.52 million in 2000. The breakdown of these forecasts by economic sector, used in forecasting office space, is given in Table 5.1.

Figure 5.1: Projected Total Population in the Denver Region*



*Denver region includes the counties of Adams, Arapahoe, Boulder, Denver, Douglas and Jefferson.

Source: Denver Regional Council of Governments, "Employment and Population Projections for the Denver Region 1980-2000," January, 1982.

TABLE 5.1

PROJECTED EMPLOYMENT BY ECONOMIC SECTOR IN THE DENVER REGION(1)
(Numbers in Thousands)

Employment Sector (2)	1970(5)	1975(5)	1980(5)	1985	1990	1995	2000	Change 1970-1980 Number	Change 1970-1980 %	Change 1980-1990 Number	Change 1980-1990 %	Change 1990-2000 Number	Change 1990-2000 %
Mining	4.9	8.5	18.1	27.3	27.9	29.9	33.6	13.2	269.4	9.8	54.1	5.7	20.4
Contract Construction	28.0	32.7	46.2	62.8	71.4	78.7	85.4	18.2	65.0	25.2	54.5	14.0	19.6
Manufacturing	85.5	94.9	124.3	151.9	181.3	198.0	204.4	38.8	45.4	57.0	45.9	23.1	12.7
Transportation & Public Utilities	36.4	41.0	55.4	61.8	71.8	82.0	92.4	19.0	52.2	16.4	29.6	20.6	28.7
Wholesale & Retail Trade	118.0	148.7	191.5	227.3	272.4	311.6	357.6	73.5	62.3	80.9	42.2	85.2	31.3
Finance, Insurance & Real Estate	29.8	40.0	53.9	67.7	80.2	91.2	104.0	24.1	80.9	26.3	48.8	23.8	29.7
Services	88.4	123.1	167.8	198.2	239.1	273.5	312.8	79.4	89.8	71.3	42.5	73.7	30.8
Government	90.5	117.5	137.5	153.0	172.2	195.8	222.2	47.0	51.9	34.7	25.2	50.0	29.0
Total Non-Agric. Wage & Salary	481.5	606.4	794.7	950.0	1116.3	1260.7	1412.4	313.2	65.0	321.6	40.5	296.1	26.5
Agricultural(3)	8.5	7.4	5.8	5.2	5.1	4.7	4.2	-2.7	-31.8	-0.7	-12.1	-0.9	-17.6
Military(3)	12.1	10.5	11.1	11.1	11.1	11.1	11.1	-1.0	-8.3	0.0	0.0	0.0	0.0
All Other(3)(4)	40.7	47.1	57.9	68.0	76.1	86.4	97.0	17.2	42.3	18.2	31.4	20.9	27.5
Total Employed (Jobs)	542.8	671.4	869.5	1034.3	1208.6	1362.9	1524.7	326.7	60.2	339.1	39.0	316.1	26.2

(1) From Denver Regional Council of Governments, Employment/Population Policy Forecasts 1980-2000, June, 1982. Denver region includes the counties of Adams, Arapahoe, Boulder, Denver, Douglas, and Jefferson.
(2) Jobs by place of work.
(3) Employment by place of residence. (Employment by place of work is not availabe for these categories.)
(4) Includes self-employed, unpaid family, and domestic workers.
(5) Colorado Department of Labor estimates.

Regional Office Demand. Historical Denver office data are not available for periods prior to 1978. The most complete source of office information is Black's Research Service, although this firm has operated in Denver for only about one year. The other firms which keep such data either only recently established a formal research department or currently cover a much smaller number of buildings in their surveys than does Black. Coldwell Banker, for example, included 529 buidings in its December 15, 1982 summary of year-to-date office activity. Black's research service had 1,143 buildings in its July 30, 1982 data base. Frederick Ross Company formalized its research program only two years ago, although it had performed surveys as far back as 1978. The historical data from these sources are plotted in Figure 5.2.

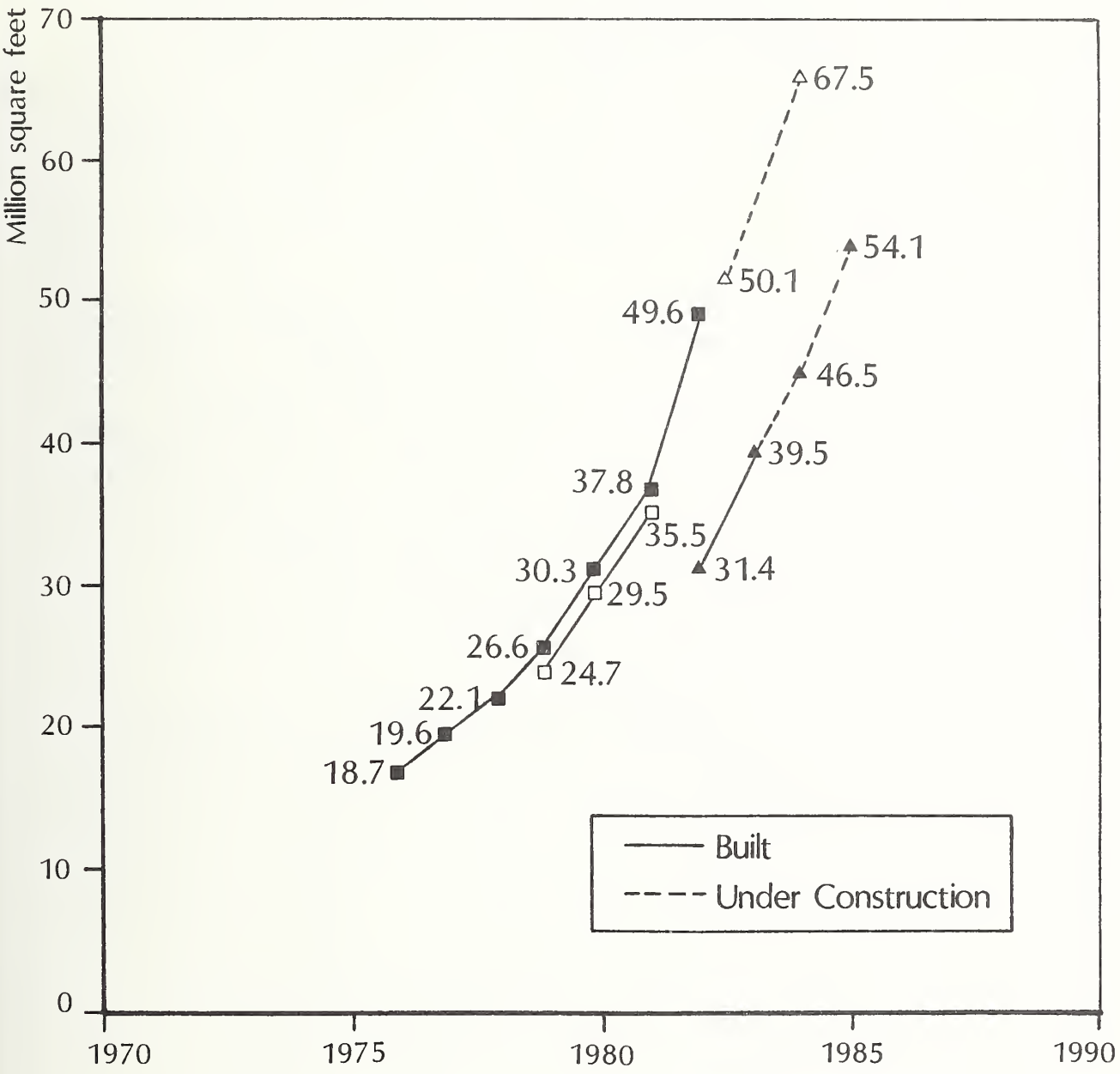
Three different methods were used to forecast office space demand. All three of the projection methods used Black's figure of 42.3 million square feet as the total occupied office square footage for 1982. The results are summarized in Figure 5.3.

The first method used Coldwell Banker's estimate of 3.7 million square feet of office space absorbed in 1982 (as of November 30) and an estimate of Denver's 1982 population, interpolated from DRCOG's projections for 1985 and from the 1980 census figure, to calculate an absorption/population ratio of 2.2. This ratio was applied to DRCOG's forecasts of population to the year 2000. Years for which forecasts were not done were interpolated. The sum of these estimated annual absorptions added to a 1982 base of 42.3 million square feet produced an estimate of 125.6 million square feet of office space demand for the year 2000. Annual absorption ranged from 3.7 million in 1982 to 5.5 million in the year 2000.

A second approach used was to assume that an average of 3 million square feet would be absorbed per year. Annual absorption rates over the last ten years (1973-1982) showed an average of 2.5 million square feet and ranged from 1.6 million square feet in 1973 to a peak of 4.8 million square feet in 1981. Using 3 million square feet as an average annual absorption rate produced a total of 96.3 million square feet of occupied office space in 2000.

The third approach used assumed that amount of office space needed in the future depends on the amount of growth in the number of employees for each economic sector and on the percentage change in office employment within each sector. Using DRCOG policy forecasts for non-agricultural employment by economic sectors for 1980 and 2000, and using Rice Center's percentage estimates of office employment within each sector for two time periods, 1980 and 1990, weighted averages were calculated to produce percentage estimates of overall office

Figure 5.2: Office Space Growth



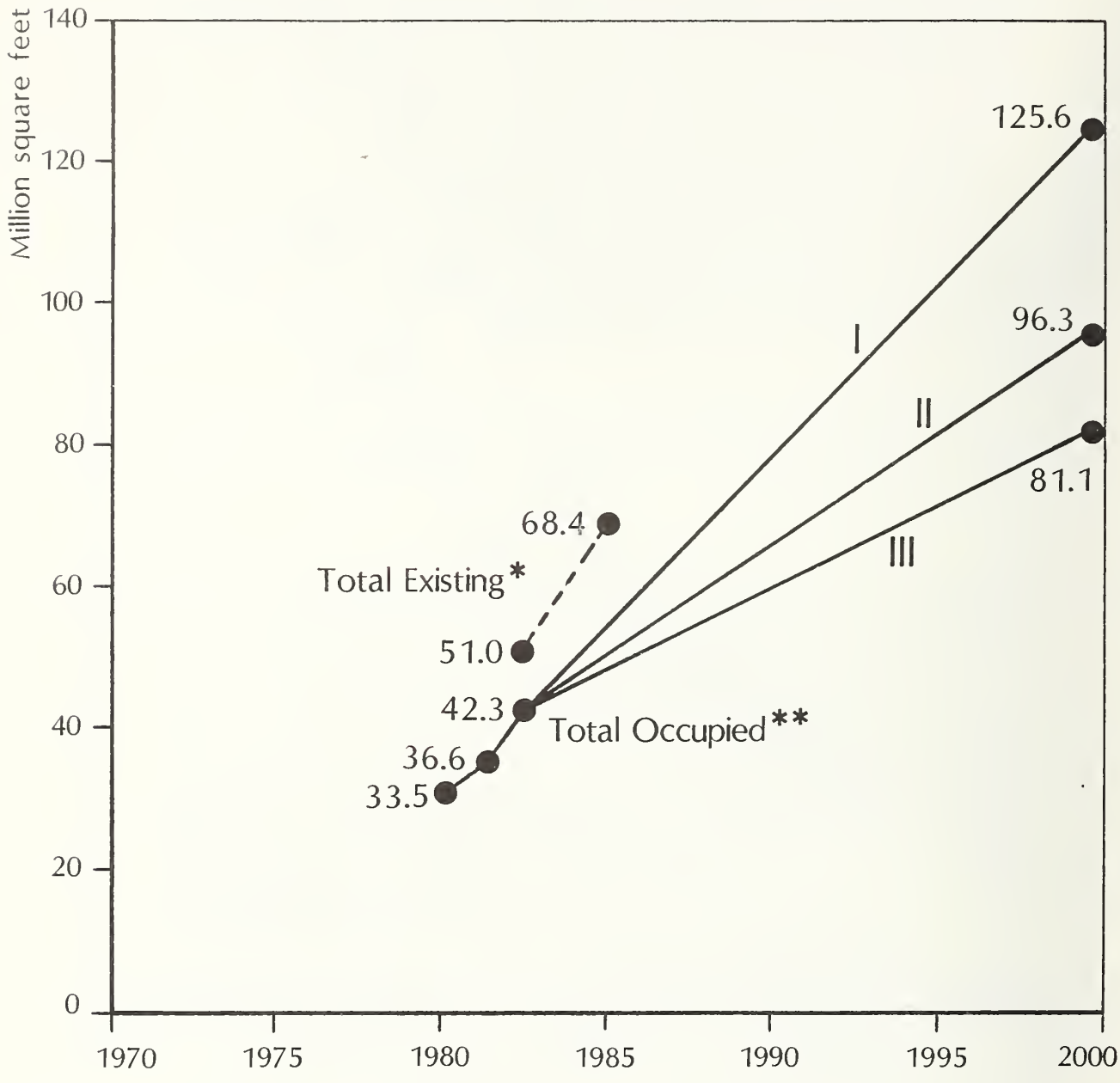
■ Chamber of Commerce, includes space under construction at time of survey.

□ Frederick Ross, 1981 Office Market Research Report, multi-tenant buildings of more than 10,000 s.f. surveyed.

▲ Coldwell Banker, Marketing Statistics, Summaries for December, 1981 and November, 1982.

△ Black's Research Service, Development and Availability Report, July 30, 1982 (one year in existence).

Figure 5.3: Projected Office Space Demand by Three Methods



I Assuming absorption as a constant percentage of population (220%).

II Assuming absorption of 3 msf/year.

III Assuming a 37% office/total non-farm employment for 1980 and 43% for 2000.

---

* Black's Research Service, "Development and Availability Report," July 30, 1982.

**Estimates for total occupied space based on Coldwell Banker multi-tenant occupied space estimates, "Marketing Statistics, Summaries for December, 1981 and November, 1982."

employment in 1980 and 2000. (Percentage estimates by economic sector for 1990 were applied to total employment forecasts for the year 2000 to produce a conservative projected non-agricultural employment of 43% in 2000, an increase over the 37%, in 1980, as shown in Table 5.2.)

The first method probably overstates office demand, since the 1980-1982 period was extraordinarily active. However, extrapolating past absorption trends, as done in method #2, does not adequately account for population growth and resulting increases in absorption rates.

Thus, the results of the third method were used in this study as a total against which to compare the market share of station-related development. Unless employment forecasts are revised upward, or unless the mining, finance, insurance, real estate, or services sectors account for a significantly higher percentage of the total employment than anticipated, it is not likely that office employment in 2000 would rise much above the 507,700 indicated in Table 5.2. Among the nation's cities, the highest ratio of office employees to total non-agricultural employees is 46%, versus the 43% forecast for Denver. Even using the higher ratio, occupied office space still should be in the 100 million square foot range. Assuming a 10% vacancy rate, the gross inventory of office space in the year 2000 should be approximately 110 million.

Regional Hotel Demand. The hotel space proposed in this study is assumed to be related primarily to office business, since statistics indicate that the majority of hotel occupancy in cities like Denver is derived from businss-related, as opposed to recreational, needs. As a rough approximation of demand, ratios of the number of hotel rooms compared to the amount of office space were developed for the region and for subareas within the region. From published sources of office space data, 1982 estimates of total and occupied office space were obtained. Similarly, the number of hotel rooms and an estimated occupancy rate were obtained.

In 1982, according to Laventhol & Horwath information, there were approximately 13,500 hotel rooms in the Denver metropolitan area, of which 3,730 were in the downtown and 2,182 in the southeast suburban area. Overall, occupancy was approximately 70%; in other words, 9,450 rooms were occupied. If an 80% occupancy level were desired, then the current supply of hotel rooms should be 11,812, 3,263, and 1,909, respectively for the metropolitan area, downtown, and southeast suburban markets. The current range of hotel demand in the metropolitan area is therefore conservatively estimated to be between 9,450 and 11,812 rooms, which is less than the current supply.

TABLE 5.2

PERCENT OFFICE EMPLOYMENT BY INDUSTRY

	1980 % Office (1)	1980 # Emp. (000's)(2)	1980 # Office Emp.	1990/2000 % Office (1)	2000 # Emp. (000's)(2)	2000 # Office Emp.
Mining	61	18.1	11.0	67	33.6	22.5
Construction	17	46.2	7.8	19	85.4	16.2
Manufacturing	29	124.3	36.0	33	204.4	6.4
Utilities	31	55.4	17.2	33	92.4	30.5
Wholesale	40			42		
	34.5	191.5	66.1	38.5	357.6	137.7
Retail	29			35		
F.I.R.E.	56	53.9	30.2	59	104.0	61.4
Services	46	167.8	77.2	55	12.8	172.0
Total		657.2	245.5		1190.2	507.7
Estimated % Office	37			43		

(1) Rice Center 1982 estimates.
(2) From DRCOG "Employment/Population Policy Forecasts 1980-2000," June, 1982.

Corresponding numbers for office space assume that 90% of the space is currently occupied, or that a 10% vacancy rate exists. Since both hotel and office space currently have relatively high vacancy rates, these adjusted numbers give a realistic average.

Comparing hotel rooms to office space, there are approximately 217 rooms per one million square feet of downtown office space, 176 rooms per one million square feet of office space in the southeast suburban area, and 271 rooms per one million square feet of office space in the metropolitan area. With the addition of another 400-room hotel in the southeast, the ratio in that sector will increase from 176 rooms to 208 rooms per one million square feet of office space. Applying projected office space to the average ratio 215 rooms per one million square feet of office space (in major office centers), there should be a market (assuming a 20% vacancy rate) for a total of approximately 20,000 to 23,000 rooms in the year 2000. Since regional hotel demand is influenced also by tourist/visitor business, this method is limited to the hotels which serve major employment centers. Hotel uses proposed in this study are generally located in areas of extensive business activity.

Regional Retail Demand. According to a 1981 retail survey conducted by Frederick Ross Company, there were 26,922,100 square feet of retail space in 270 shopping centers throughout the Denver metropolitan area. During the period 1979 through 1981, approximately 5.7 million square feet of shopping center retail space were absorbed, or an average of 1.9 million per year over the three-year period. Comparing retail space to total population for that same period, there was a range of 14.2 square feet of shopping center retail space to 16.3 square feet of shopping center retail space. Assuming this relationship extends into the future, at a rate of 15.25 square feet of shopping center retail space per person, in the year 2000 there should be a total of approximately 40 million square feet of shopping center retail space supporting the metropolitan population.

Not included in this total are single-tenant stores or retail/service space located in office space. The latter, which is of interest to this study, can be estimated as a fraction of office space at a rate of 20,000 square feet (approximately one floor) of retail/service per one million square feet of office space. This ratio is commonly used for planning purposes. Where applicable at station areas in this study, the office-related retail component was calculated as a percentage of office space, rather than as a market share of the regional total of shopping center retail space.

Regional Demand for Housing Units. In 1980, there was an average of 2.47 persons per household in Denver, a decrease from 3.08 reported in 1970. Although household size is

TABLE 5.3
STATION RELATED DEVELOPMENT SHARE OF
TOTAL REGIONAL DEMAND

USE	REGIONAL DEMAND 1982-2000	STATION DEVELOPMENT: TOTAL CONSERVATIVE SCENARIO	TOTAL MODERATE SCENARIO	TOTAL AGGRESSIVE SCENARIO	% OF REGIONAL DEMAND 1982-2000 C	M	A	TOTAL AGGRESSIVE SCENARIO THROUGH DISTRICTS[1]	% OF REGIONAL DEMAND 1982-2000
Office[2]	41.7 msf	0.565 msf	3.155 msf	6.425 msf	1.4	7.6	15.4	3.35 msf	8.0
Hotel[3]	10,150 rooms	400	1,550	2,462	3.9	15.3	24.3	937	9.2
Residential[4] (multi-family)	150,000 units	0	333	3,335	0	0.2	2.2	3,264	2.2
Retail[5] (shopping centers)	13.1 msf	0.215 msf	.390 msf	3.518 msf	1.6	3.0	26.8	2.790 msf	21.3

[1] Includes station development and other new development within district boundaries.
[2] Year 2000 forecast (110 million) minus 1982 inventory (68.3 million).
[3] Year 2000 forecast (23,650 rooms) minus 1982 inventory (13,500).
[4] Year 2000 forecast (325,000 units) minus 1980 inventory (200,000 units).
[5] Year 2000 forecast (40 million) minus 1982 inventory (26.9 million).

expected to decrease slightly over the next decade, a conservative estimate of future housing demand would assume that household size will remain constant (at 2.47). Given the DRCOG population forecast of 2.51 million in 2000, Denver should contain approximately 1.01 million households in 2000.

The housing type of interest to this study is multi-unit apartments and condominiums, because land costs and adjacent uses at station areas make low density single-family housing unfeasible. In 1980, multi-family housing accounted for 27% of the total (up from 24% in 1970). Assuming that limited land availability and housing costs will further the trend toward multi-family housing, by the year 2000, easily 30% to 35% of the housing inventory could be multi-family, or 300,000 to 350,000 units. This represents an increase of 100,000 to 150,000 units over Denver's current multi-family housing stock.

Disposable Income as a Demand Indicator

Disposable income figures are often used as indicators of demand in planning for development of residential and commercial projects. These figures tell whether a specific type of development -- for example, high-density luxury condominiums -- is feasible for a given location.

Because of the "broad-brush" approach taken by this study, disposable income figures were not used in forecasting demand. They should be analyzed as part of the first step in the methodology, in order accurately to identify appropriate development programs for the individual sites. Disposable income should be taken into account along with the development and real estate market, corridor characteristics, and regional economic forecasts in determining feasible and appropriate land use mixes. All of this information is valuable in developing an accurate program for station development (see Task 6 of the project methodology, Chapter 3).

Conclusion

As noted in Chapter 6, the assumptions about development around LRT stations are consistent with the forecasts of regional demand for office, hotel, retail and residential space. Of the various space uses proposed in this study for the station areas, office space is by far the predominant, accounting for 6.425 million square feet in the aggressive scenario. Other uses are hotel, 2,462 rooms; retail, 3.518 million square feet; and residential, 3,335 units in the aggressive scenario. Table 4.3 indicates the percentage of regional demand (1982-2000) which these amounts represent. In general, assumed station area development is a relatively small portion of the total regional market. This is especially significant given the geographic expanse of the proposed 77-mile LRT system.

Chapter 6

Station-by-Station Analysis

This chapter presents brief descriptions of the potential for development or redevelopment and for value capture at each station of the proposed system. Also included in this chapter are an analysis of development potential surrounding the stations, the particular cases used in the systemwide cash flow analysis, and a presentation of associated legal or political issues.

The material below is based on a delineation of conservative, moderate, and aggressive scenarios for development of each station site. Figures 6.1, 6.2, and 6.3 show the financing mechanism proposed for each station under each of the three scenarios. The assumptions underlying the three conditions are outlined for each value capture mechanism, as shown in Table 6.1.

The conservative posture involves only station concession and land leases at sites which are judged to be the most secure for investment. A 10% expected rate of return was employed in structuring the transactions. Twenty conservative scenarios are analyzed among the 41 stations studied.

In the moderate scenario, RTD would take a more active role in the development of station areas, and would employ a wider range of financing mechanisms. Assessment districts, joint ventures, tax increment financing, and development rights leasing are all proposed. These value capture techniques involve somewhat more risk to RTD and require stronger negotiation than those specified in the conservative scenario. A 12.5% expected rate of return on development rights leases was assumed for each of the 33 stations analyzed under the moderate approach.

A strong entrepreneurial stance is required for the aggressive scenario, which assumes a 15% expected rate of return on development rights leases. This approach involves the greatest amount of land acquisition and adds turnkey development to the list of financing alternatives. Aggressive techniques are proposed for 41 stations.

The methodology described below was used to select value capture techniques for application to each site:

First, no value capture was proposed for stations located where the existing land use would not support development in the near

Figure 6.1: Value Capture Conservative Scenario

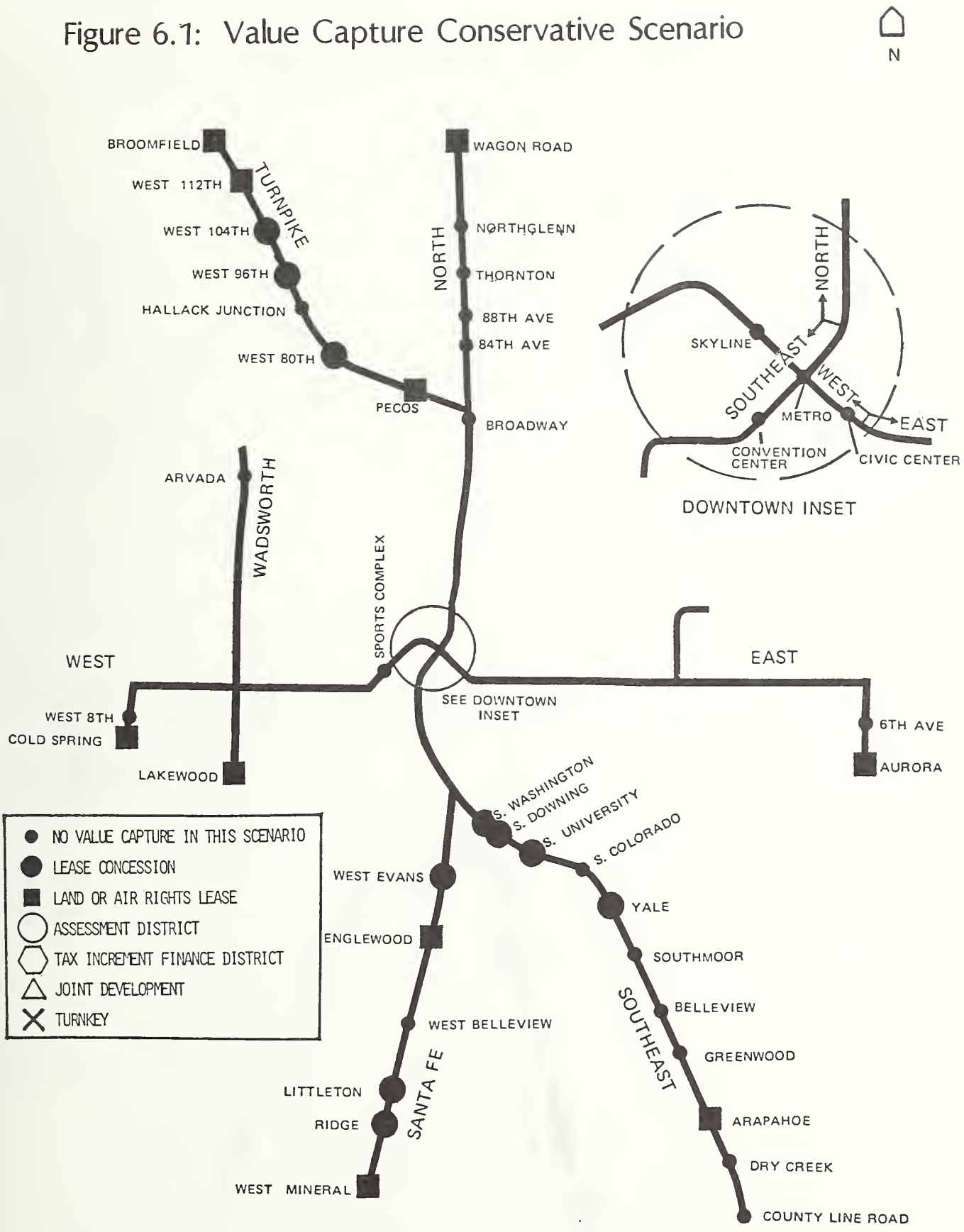


Figure 6.2: Value Capture Moderate Scenario

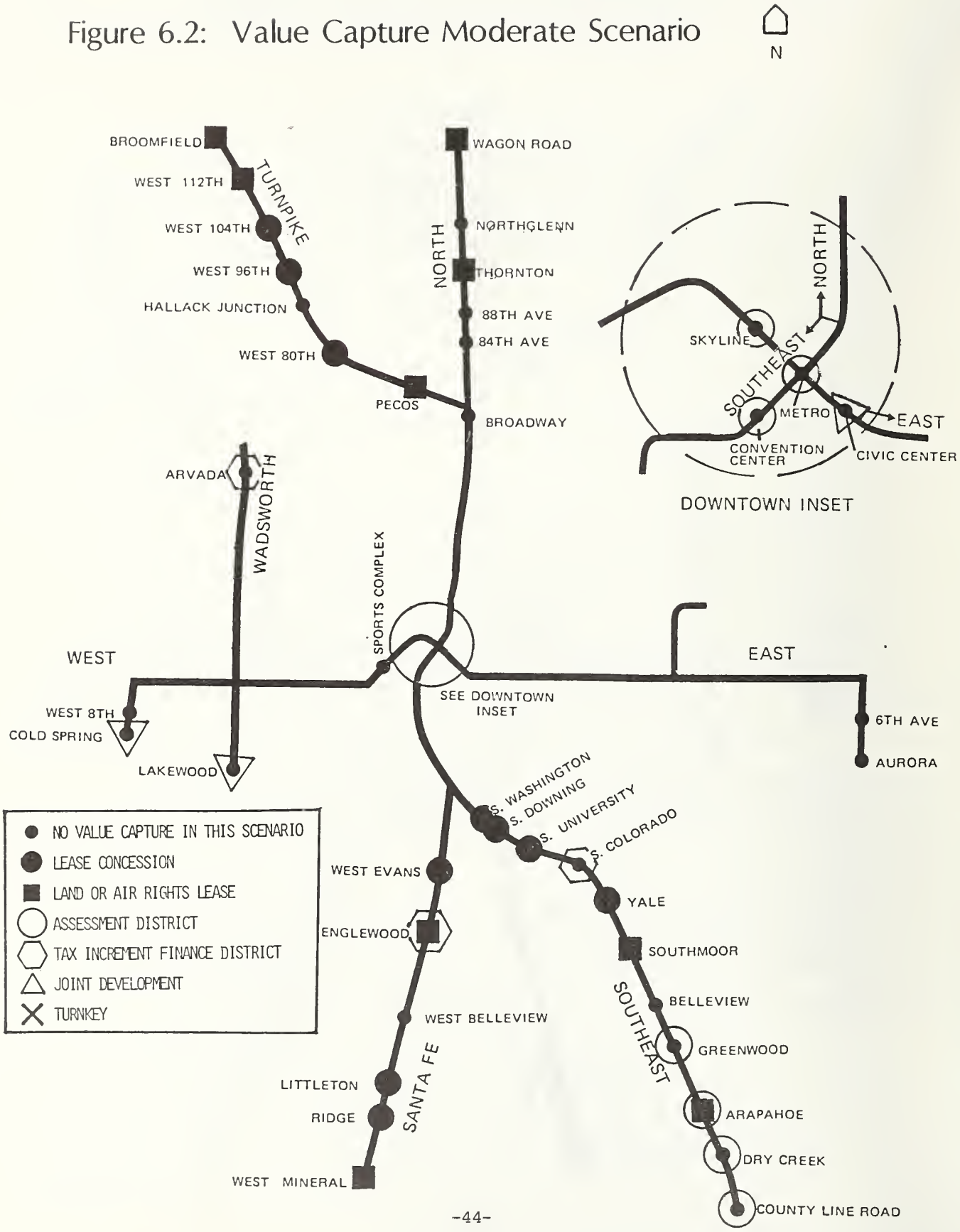


Figure 6.3: Value Capture Aggressive Scenario

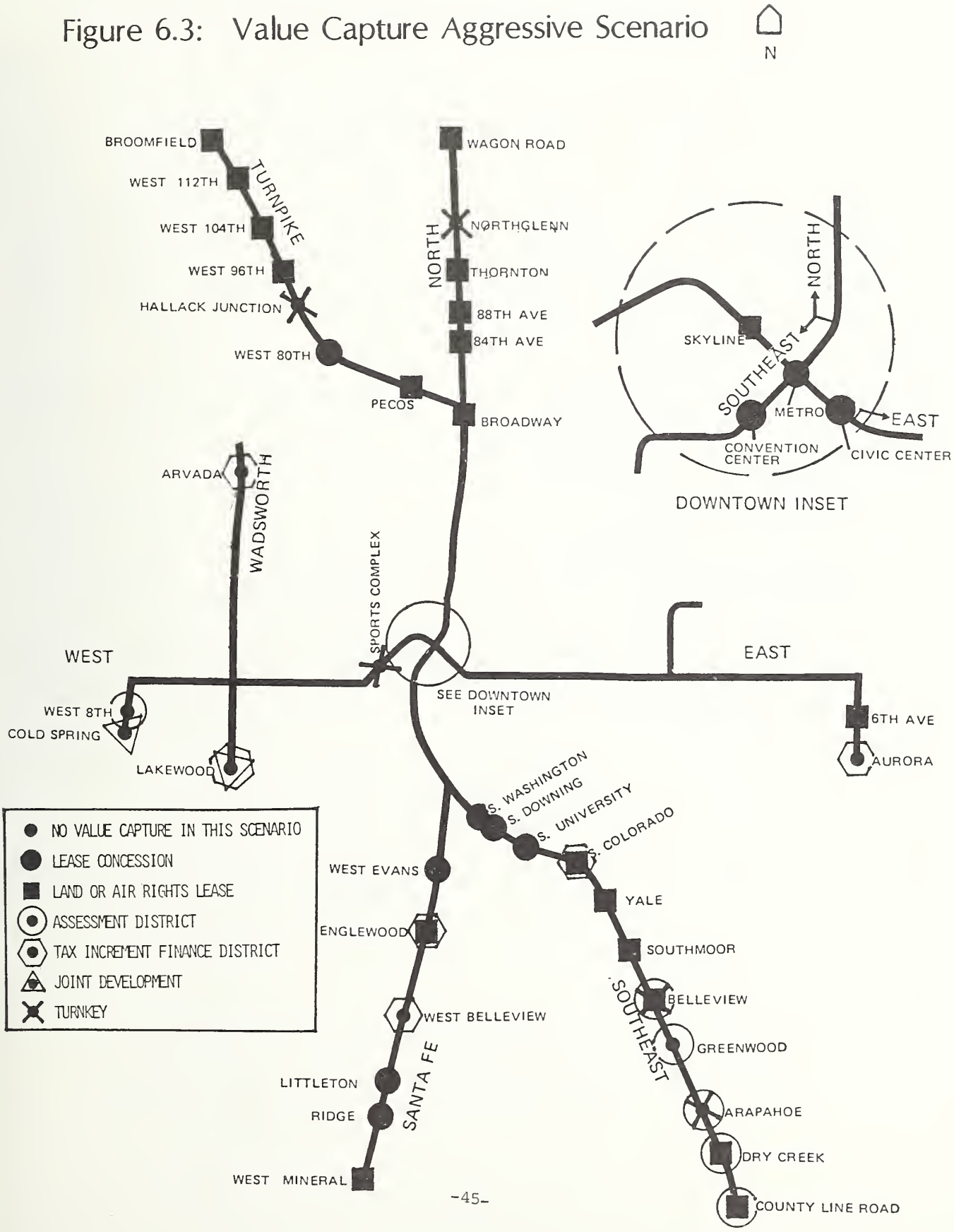


TABLE 6.1
DEVELOPMENT POSTURES FOR ALTERNATIVE
VALUE CAPTURE MECHANISMS

	Conservative	Moderate	Aggressive
a. Policy on Value Capture	Only "safe" sites are developed, all through leases.	Some negotiating required; wide range of financing alternatives available.	RTD becomes an active entrepreneur and developer.
b. Lease of Development Rights	Based on 10% expected rate of return.	Based on 12.5% expected rate of return.	Based on 15% expected rate of return.
c. Tax Increment Financing	No districts.	Use for redevelopment purposes.	Use for transit purposes (requires legislative change).
d. Assessment Districts	No districts.	Utilize existing Metro Districts	Establish new districts.
e. Direct RTD Participation in Development	Leases of concessions.	Leases of concessions.	Leases of concessions, joint development, and turnkey stations.
f. Land Acquisition	For engineering need only, except in small parcels where easily available for leasing.	For engineering need and land leases.	For a wide range of uses.
g. Zoning Changes	No changes allowed.	Change of density allowed, but land use changes not allowed.	Changes of densities and zoning allowed.

future, thus, 41 of the 85 stations proposed along the LRT route were used in this project. Evaluation of development potential was based on value judgements made by real estate and development professionals.

In stable areas where adequate ridership could be anticipated but little demand exists, leased concession space was programmed within each station facility. Concessions generally were proposed in the conservative and moderate scenarios or when further development was not considered feasible.

Leasing is the most commonly proposed financing mechanism for each site. In a few instances, however, where ground is scarce, air rights leases are recommended. When it was judged that the economic benefit of development would be limited to a small geographic area, a special assessment district was recommended. Development at some stations was regarded as being of potential benefit to a large area and, in those instances, tax increment financing was analyzed. Proposed tax rates were checked against existing rates and against rates of return to determine their reasonableness. Other mechanisms were recommended in a few cases, and those are noted as they occur. Table 6.2 summarizes all the financing mechanisms used in this study.

In many cases, it was assumed that RTD would acquire additional land to accommodate the development programmed for a station site. These cases most often occur in the moderate and aggressive scenarios; however, land acquisition also is programmed for a few conservative scenarios in areas where small amounts of additional property could be purchased inexpensively. Cases in which land cost is included in the value capture analysis are noted in the text; otherwise, land cost is excluded since it is assumed that RTD already owns the required land.

Each station, moving outward from downtown on each of the radial corridors, is discussed individually. It should be noted, however, that no detailed market study has yet been performed for any of the station "projects." Thus, while this chapter discusses, for purposes of revenue calculations, the development of the sites on a station-by-station basis, the focus of the overall project is a presentation of the systemwide revenue potential of station value capture techniques.

This analysis focuses attention on commercial uses: office development of varying densities and several scales of retail development. In several stations, high-density residential or hotel uses are suggested. However, it was assumed that low-density residential and industrial uses are too

land-consumptive to be warranted within the boundaries of station areas which RTD might reasonably acquire for "public use" or "public purposes."

Table 6.3 shows definitions of the types of development programmed for the station areas, as well as the figures used in the value capture computations for each development type. Since cost figures are averages for the entire system, including downtown and suburban areas, they may not reflect accurately "real" costs at any particular site. Thus, they are for purposes of comparison only.

TABLE 6.2
SUMMARY OF VALUE CAPTURE MECHANISMS USED*

Lease Concession

S. Washington (C,M,A)
S. Downing (C,M,A)
S. University (C,M,A)
Yale (C,M)
W. Evans (C,M,A)
Littleton (C,M,A)
Ridge (C,M,A)
W. 80th (C,M,A)
W. 96th (C,M)
W. 104th (C,M)

Land Lease

S. Colorado (A)
Yale (A)
Southmoor (M,A)
Belleview (A)
Arapahoe (C,M)
County Line Road (A)
Englewood (C,M,A)
West Mineral (C,M,A)
Broadway (A)
84th Avenue (A)
88th Avenue (A)
Thornton (M,A)
Wagon Road (C,M,A)
Pecos (C,M,A)
W. 96th (A)
W. 104th (A)
W. 112th (C,M,A)
Broomfield (C,M,A)
6th Avenue (A)
Aurora (C)
Cold Spring (C)
Lakewood (C)
Dry Creek (A)

Assessment District

Belleview (A)
Greenwood (M,A)
Arapahoe (M,A)
Dry Creek (M,A)
County Line Road (M,A)
W. 8th (A)
16th/California (M)
Convention Center (M)
16th/Market (M)

Air Rights Lease

16th/California (A)
Convention Center (A)
16th/Market (A)

Tax Increment Financing

S. Colorado (M,A)
Englewood (M,A)
W. Belleview (A)
Lakewood (A)
Arvada (M,A)
Aurora (M,A)

Joint Venture

Cold Spring land lease (M,A)
Lakewood land lease (M,A)
Civic Center air rights lease (M,A)
Arapahoe (A)

Turnkey

Northglenn (A)
Sports Complex (A)
Hallack Junction (A)
Belleview (A)

*Stations noted (C) are included in the conservative scenarios, (M) in the moderate scenario, and (A) in the aggressive scenario.

TABLE 6.3

DEVELOPMENT TYPES, COSTS AND REVENUES

Use	Type	Description	Total Developed Cost/SF[1]	Annual Operating Cost/SF	Annual Income/SF[2]
Retail	Neighborhood	Development in medium density setting, 5,000-20,000 S.F.	$ 48.30	$ 2.50	$13.50
	Community	Grocery-anchored shopping center, 15,000-140,000 S.F.	$ 48.80	$ 3.00	$15.50
	Regional	Regional shopping mall or expansion, 100,000-1,000,000 S.F.	$ 53.85	$ 3.00	$16.00
	Office based	Restaurants, services, etc. within office buildings, 20,000 S.F.	$ 85.09	$ 3.00	$19.00
	Station Concession	Leased retail space within station facilities, 2,000-5,000 S.F.	$ 65.24	$ 4.00	$22.00
Office	Low-rise	1-2 stories, 20,000-40,000 S.F.	$ 67.48	$ 4.00	$13.00
	Campus type	3-4 stores, Type A construction, 30,000-150,000 S.F.	$ 73.86	$ 4.00	$16.00
	Mid-rise	8-12 stories, Type A construction, 100,000-180,000 S.F.	$ 87.43	$5.00	$22.00
	High-rise	18 stories and above, Type A construction, 250,000-1,200,000 S.F.	$106.63	$4.00	$23.00
Hotel	Corporate	Mid-rise executive, e.g. Ramada Inn	$ 68.51	$15.33	$42.22
	Luxury	Mid- to high-rise luxury, e.g. Hyatt	$ 83.54	$23.74	$65.69

TABLE 6.3 (Cont'd)

Use	Type	Description	Total Developed Cost/SF[1]	Annual Operating Cost/SF	Annual Income/SF[2]
Residential	Medium density	2-4 stories, rental or condominium, 1,200 S.F./DU gross	$ 52.82	$ 2.30	$ 5.75
	High density	High-rise, rental or condominium, 1,200 S.F./DU gross, high price range	$ 54.70	$ 3.60	$ 9.00
Parking	Low density surface	Surface lot in low density context	$ 3.90	$ 3.75	$ 0.0
	Mid density surface	Surface lot in medium density context	$ 3.90	$ 3.75	$ 0.0
	Mid density stucture	Parking structure in medium density context	$ 22.86	$ 0.75	$ 1.31
	High density	Parking structure in high density context	$ 26.13	$ 0.75	$ 2.80

[1] Costs include development organization, site preparation, startup, and construction. Land acquisition cost is not included.

[2] Income includes rent income per gross square foot of project area.

SOUTHEAST LINE

West 10th — W. 10th Avenue and Osage Street

The West 10th station area is dominated by railroad-related industry, with little prospect for change. No value capture mechanisms were proposed for this station.

West 6th — W. 6th Avenue and Mariposa Street

This station is similar in its context and future prospects to the West 10th station. No value capture mechanism was proposed.

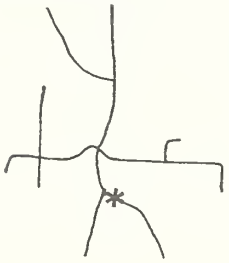
West Alameda — W. Alameda Avenue and Cherokee Street

Near the existing RTD bus maintenance facility, the Alameda station is in a largely industrial area, although there is a low-income housing project near the station. The bus garage site might be sold for industrial use when a new facility is built, but there is little potential for new development at the station site. No value capture mechanism was proposed.

South Broadway — S. Broadway and Mississippi

South Broadway is at the junction of the Southeast and Santa Fe Railroad lines. The station area is dominated by Gates Rubber Company, and RTD owns the Burkhardt Steel property. Again, the prevailing land use is industrial, and although Gates has expressed interest in redevelopment, it is unlikely that the composition of the area will change dramatically. No value capture mechanism was proposed.

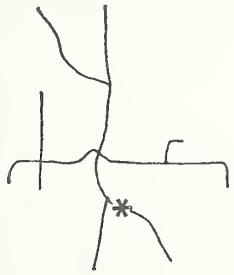
South Washington — S. Washington & Buchtel Boulevard

LOCATION	PROGRAMMED USE		
	CONSERVATIVE	MODERATE	AGGRESSIVE
	Lease Concession	Lease Concession	Lease Concession
	2,000 S.F.	2,000 S.F.	2,000 S.F.

At South Washington, industrial uses give way to single-family housing. Current zoning and market conditions preclude major non-residential uses, but there is an opportunity for concessions at the station to serve the rail patrons. Lease concession space was programmed for the conservative, moderate, and aggressive scenarios.

South Downing — S. Downing & Buchtel Boulevard

LOCATION



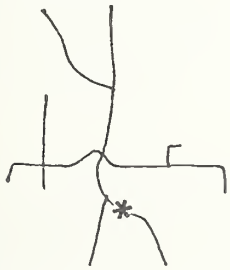
PROGRAMMED USE

CONSERVATIVE	MODERATE	AGGRESSIVE
Lease Concession	Lease Concession	Lease Concession
2,000 S.F.	2,000 S.F.	2,000 S.F.

Similar to the South Washington station, the South Downing station is located in a residential area; concession leases were included in the conservative, moderate, and aggressive scenarios.

South University — S. University & Buchtel Boulevard

LOCATION



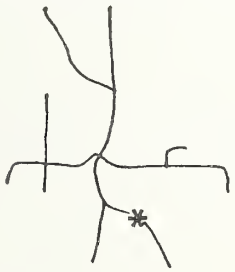
PROGRAMMED USE

CONSERVATIVE	MODERATE	AGGRESSIVE
Lease Concession	Lease Concession	Lease Concession
2,000 S.F.	2,000 S.F.	2,000 S.F.

This station is near tne University of Denver. The station area has potential for a variety of uses, but the immediate area is zoned for single-family residential use. Accordingly, development was limited to station concessions in the moderate and aggressive scenarios.

South Colorado — S. Colorado Boulevard & Buchtel Boulevard South of I-25

LOCATION



PROGRAMMED USE

CONSERVATIVE	MODERATE	AGGRESSIVE
Tax Incr. Fin.	Tax Incr. Fin.	
High rise off. 300,000 S.F.	High rise office 300,000 S.F.	
Com. retail 20,000 S.F.	Com. retail 20,000 S.F.	
High dens. res. 400,000 S.F.	High dens. res. 400,000 S.F.	
Mid dens.str.pk. 174,000 S.F.	Mid dens.str.pk. 174,000 S.F.	

South Colorado (cont'd)

Land Lease
Mid rise off. 180,000 S.F.
Off. retail 20,000 S.F.
Com. retail 60,000 S.F.

This station is the first along the southeast line at which both market conditions and zoning might allow substantial redevelopment, although there has been community opposition to the idea of any high density development in the "Colorado Triangle" (bounded by IH-25, Colorado Boulevard, and East Evans Avenue). This area is currently in commercial use and has been suggested for possible renewal or redevelopment. Its potential is well illustrated by the dense, mixed-use development across the freeway along Colorado Boulevard.

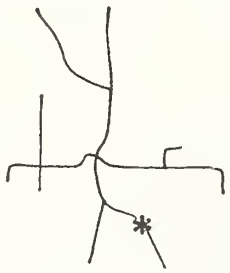
In the moderate and aggressive scenarios, a tax increment finance district was proposed which would encompass the Colorado Triangle. The aggressive scenario also incorporates a land lease arrangement which requires further property acquisition by RTD.

Although community acceptance of any development is not guaranteed, a carefully designed planned unit development could enhance the image of the area. Building heights and traffic impacts are likely to be major concerns at this and other sites.

The area encompassing the "Colorado Triangle" would satisfy the required conditions under existing legislation for it to be designated a tax increment finance district. In a moderate or aggressive scenario, RTD and the city's Urban Redevelopment Authority would prepare joint redevelopment plans which would include development of the fixed guideway station.

Yale — I-25 at E. Yale Avenue exit

LOCATION



PROGRAMMED USE

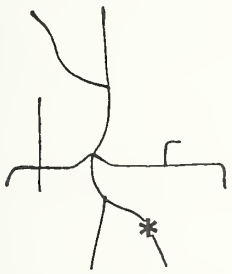
CONSERVATIVE	MODERATE	AGGRESSIVE
Lease Concession	Lease Concession	Lease Concession
2,000 S.F.	2,000 S.F.	Campus office 90,000 S.F. Com. retail 15,000 S.F. Mid dens. str.pk. 65,000 S.F.

The immediate station area at Yale is comprised of small businesses; the surrounding area is residential. Although this area does not have as much potential as Colorado Boulevard, it could support medium-density office or retail development.

A zoning change is required at this proposed station site in order to develop the commercial activities which could be achieved in an aggressive approach. The site currently is zoned for residential use, although a non-conforming use actually occupies the site. The community has been opposed in the past to a zoning change for the property. If owned by RTD, the zoning probably could be changed more easily. Land acquisition by RTD is assumed in the aggressive scenario.

Southmoor — I-25 at S. Hampden Avenue exit

LOCATION



PROGRAMMED USE

CONSERVATIVE	MODERATE	AGGRESSIVE
	Land Lease	Land Lease
	Low rise office 30,000 S.F.	Campus office 90,000 S.F.
	Com. retail 30,000 S.F.	Neighbrhd retail 15,000 S.F.
	Mid dens.str.pk. 20,250 S.F.	Mid dens. res. 42,000 S.F.
		Mid dens.str.pk. 77,000 S.F.

The Southmoor Park Mountain View Ordinance, which can be used to restrict the density and height of development in order to preserve the view from the park of Denver's mountains, is an issue for development in the vicinity of the station site under either scenario.

RTD currently operates a park-and-ride facility across the freeway from the proposed station location. Although it is not in the immediate station area, future development plans for the land on which the park-and-ride facility is located must respect any conditions under which the land was acquired originally by RTD. This obviously impacts how the land may be used. The land lease in the aggressive scenario requires further property acquisition by RTD.

Belleview — I-25 at S. Belleview Avenue exit

LOCATION

PROGRAMMED USE

CONSERVATIVE — MODERATE — AGGRESSIVE

Turnkey

Station facility
20,000 S.F.
Bridge
1,000

Land lease

Mid rise off.
300,000 S.F.
Com. retail
30,000 S.F.
Mid dens.str.pk.
178,500 S.F.

Assess. District

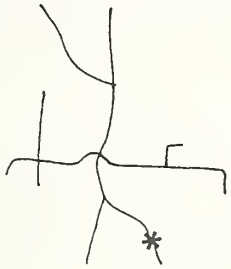
High rise office
250,000 S.F.
Regional retail
1,000,000 S.F.
Luxury hotel
400,000 S.F..
Mid dens.str.pk.
1,400,000 S.F.

Under an aggressive approach, three value capture techniques would be combined. The station facility and a pedestrian bridge spanning I-25 would be developed as turnkey projects. Some land would be developed under a lease arrangement, while further development, as well as operating and maintenance costs, would be funded through the creation of a new Metropolitan District. Colorado law authorizes the establishment of new Metropolitan Districts which may overlap existing Metropolitan or special districts. This new Metropolitan District would finance and benefit from the development of the station.

The aggressive scenario will require a zoning change to allow development of commercial activities. While a private developer might have difficulty changing the zoning of the property, RTD should be in a better position to effect a zoning change. Land acquisition by RTD is programmed in the land lease analysis.

Greenwood — I-25 at East Orchard Road exit

LOCATION



PROGRAMMED USE

CONSERVATIVE	MODERATE	AGGRESSIVE
	Assessment District	Assessment District
	Mid rise office 400,000 S.F.	Mid rise office 400,000 S.F.
	Office retail 20,000 S.F.	Office retail 20,000 S.F.
	Mid dens.str.pk. 210,000 S.F.	Mid dens.str.pk. 210,000 S.F.

The proposed location for this station is within the existing Greenwood Metropolitan District on the west side of I-25, and it also is adjacent to the existing Goldsmith Metropolitan District on the east side of I-25.

A moderate scenario would include financing for development by these existing districts. Each district's benefits would be assessed in order to apportion the costs properly.

Creation of a new Metropolitan District, which would include portions of both of the existing Greenwood and Goldsmith Metropolitan Districts, would finance both development costs and ongoing operating and maintenance costs, under an aggressive approach. A single board of directors would allocate resources, and the geographical base for assessment would represent more accurately those receiving the most benefit from the station.

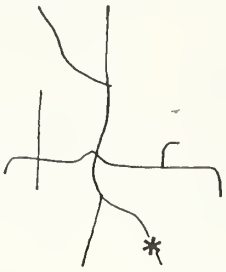
RTD currently operates a park-and-ride facility on land leased from the state in the vicinity of the proposed station. The possibility of acquiring this property, either through purchase or as a donation from the state, should be investigated by RTD.

RTD also should consider the use of UMTA's Advanced Land Acquisition Loan Program to finance the purchase of the park-and-ride property. This program would allow RTD to borrow money for the purchase, and RTD would not be required to pay principal or interest on the loan for 10 years, by which time the land must (and probably would) be put into use for mass transportation purposes. Although fixed guideway station development is a mass transportation purpose, commercial development of the property may be restricted by UMTA as satisfactory use of the land.

Arapahoe

I-25 at Arapahoe Road exit

LOCATION



PROGRAMMED USE

CONSERVATIVE	MODERATE	AGGRESSIVE
Land Lease	Land Lease	Joint Venture
Com. retail 140,000 S.F.	Com. retail 140,000 S.F.	Mid dens.str.pk. 140,000 S.F.
Luxury hotel 320,000 S.F.	Luxury hotel 320,000 S.F.	Luxury hotel 320,000 S.F.
	Assessment District	Assessment District
	Mid rise office 400,000 S.F.	Mid rise office 400,000 S.F.
	Office retail 20,000 S.F.	Office retail 20,000 S.F.
	Luxury hotel 320,000 S.F.	Luxury hotel 320,000 S.F.
	Mid dens.str.pk. 300,000 S.F.	Mid dens.str.pk. 300,000 S.F.

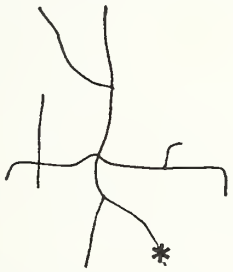
The proposed Arapahoe station site is within the existing Greenwood South Metropolitan District, and is across the I-25 freeway from the existing South Tech Metropolitan District. A moderate scenario would include financing the development of the entire station. An assessment of the proportion of benefit each district would receive would be necessary to apportion the costs properly.

A new Metropolitan District, which would include portions of both of the existing Greenwood South and South Tech Metropolitan Districts, could finance development costs and ongoing operating and maintenance costs under an aggressive approach.

A joint venture land lease arrangement is proposed. The conservative and moderate approaches differ in their assumptions regarding land costs and expected rate of return. The aggressive scenario includes a 25%/75% joint venture arrangement and higher assumed land cost. The purchase of land is programmed in the analysis in all three scenarios.

Dry Creek — I-25 at Dry Creek Road

LOCATION



PROGRAMMED USE

CONSERVATIVE	MODERATE	AGGRESSIVE
	Assessment District	Assessment District
	Campus office 100,000 S.F.	Mid rise office 175,000 S.F.
	Mid dens.srf.pk. 70,000 S.F.	Mid dens.str.pk. 122,500 S.F.
		Land Lease
		Mid rise office 175,000 S.F.
		Mid dens.str.pk. 122,500 S.F.

The proposed location of this station is across I-25 from the existing Inverness Metropolitan District. Although the station is not within the existing Metropolitan District, it will serve property owners within it. The moderate scenario would include financing by the Inverness Metropolitan District; however, it is unlikely the district would be willing to participate, because the station is not actually within its boundaries.

Under an aggressive approach, the entire station development and ongoing operating and maintenance costs could be funded through the creation of a new Metropolitan District which would be a better representation of the benefited area. Colorado law authorizes the establishment of new Metropolitan Districts which overlap existing Metropolitan or special districts. An alternative aggressive approach is to finance the development through a land lease, for which additional property would be acquired.

County Line Road — I-25 at County Line Road

LOCATION

PROGRAMMED USE

CONSERVATIVE	MODERATE	AGGRESSIVE
	Assessment District	Assessment District
	Campus office 100,000 S.F.	Mid rise office 175,000 S.F.
	Mid dens.srf.pk. 70,000 S.F.	Mid dens.str.pk. 122,500 S.F.

County Line Road (cont'd)

Land Lease

Mid rise office
175,000 S.F.
Mid dens.str.pk.
122,500 S.F.

This proposed station location is across I-25, just south of the Inverness Metropolitan District. Although the station is not within its existing Metropolitan District, it will serve property owners within it. As in the Dry Creek analysis, the moderate scenario would include development financing by the Inverness Metropolitan District, while the aggressive approach proposes creation of a new district to fund development.

Similar to the Greenwood site, RTD currently operates a park-and-ride facility on land leased from the state in the vicinity of the proposed County Line station. The possibility of acquiring this property should be investigated, and UMTA's Advanced Land Acquisition Loan Program should be considered to finance the purchase.

In the aggressive scenario, further development could be funded through a land lease. This mechanism is a good approach for sites toward the end of the Southeast Line because of the availability of land and the likelihood of continuing demand for its development. The purchase of land was assumed in the aggressive scenario.

SANTA FE LINE

W. Mississippi — W. Mississippi Avenue at railroad west of Broadway

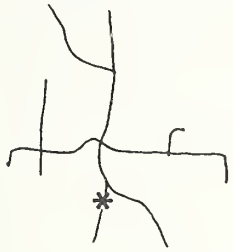
Both the West Mississippi and Iowa stations are located in areas of low-density development which are dominated by industrial and commercial uses. Because of the weak market potential, no value capture mechanism was proposed.

W. Iowa — W. Iowa Avenue at railroad west of Broadway

No value capture mechanism was proposed (see above).

W. Evans — W. Evans and S. Santa Fe Drive

LOCATION



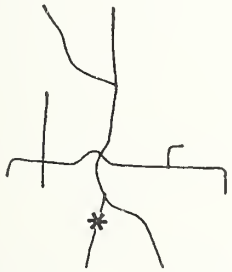
PROGRAMMED USE

CONSERVATIVE	MODERATE	AGGRESSIVE
Lease Concession	Lease Concession	Lease Concession
2,000 S.F.	2,000 S.F.	2,000 S.F.

This station is located at a main intersection of a major thoroughfare and is adjoined by both residential and commercial uses. The station's expected ridership will support a station concession.

Englewood — W. Hampden Avenue and S. Santa Fe Drive west of Cinderella City

LOCATION



PROGRAMMED USE

CONSERVATIVE	MODERATE	AGGRESSIVE
Land Lease	Land Lease	Land Lease
Com. retail 50,000 S.F. Mid dens.srf. pk. 22,500 S.F.	Com. retail 50,000 S.F. Mid dens.srf. pk. 22,500 S.F.	Com. retail 90,000 S.F. Mid dens. res. 42,000 S.F. Mid dens.srf.pk. 40,500 S.F.
	Tax Incr. Fin.	Tax Incr. Fin.
	Com. retail 30,000 S.F. Mid dens.srf. pk. 22,500 S.F.	Corporate hotel 30,000 S.F. Mid dens.srf.pk. 22,500 S.F.

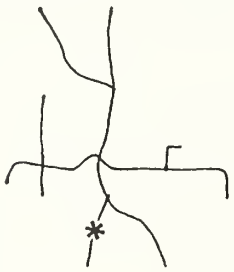
The DRCOG has designated the Cinderella City shopping area as a regional activity center, so rather intensive development is expected here. The station site is adjacent to the shopping center.

In a moderate scenario, tax increment financing could be used to finance station development at this location. Existing legislation would allow the use of tax increment financing in town center development/redevelopment as planned in this area. An aggressive scenario would require modifications to existing

tax increment financing legislation which would allow more flexibility in determining the extent of the area eligible to be included in the tax increment financing district. Land leasing is proposed under all three development scenarios, with residential development and increased retail and parking space programmed in the aggressive posture, in anticipation of the encouragement of mixed uses in the activity center. Purchase of additional land is assumed in all three scenarios.

W. Belleview — W. Belleview Avenue at railroad east of S. Santa Fe

LOCATION



PROGRAMMED USE

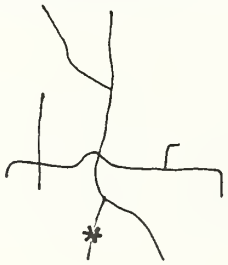
CONSERVATIVE	MODERATE	AGGRESSIVE
		Tax Incr. Fin.
		Low rise office 30,000 S.F.
		Neighbrhd retail 20,000 S.F.
		Mid dens. res. 52,500 S.F.
		Mid dens.srf.pk. 28,500 S.F.

Redevelopment of Centennial Turf Club will have an impact on this area, which contains a mixture of low-density residential, commercial, and industrial uses.

Under an aggressive approach, tax increment financing could be used to support station development at this location, if existing legislation governing the use of tax increment financing were modified to include RTD station areas where beneficial commercial impact can be achieved. Existing legislation requires that only urban renewal/redevelopment type activities be supported by tax increment financing.

Littleton — Littleton Boulevard at railroad

LOCATION



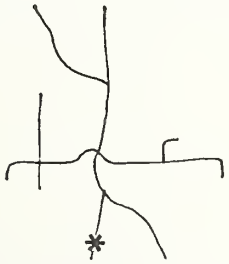
PROGRAMMED USE

CONSERVATIVE	MODERATE	AGGRESSIVE
Lease Concession	Lease Concession	Lease Concession
3,000 S.F.	3,000 S.F.	3,000 S.F.

Concession leases were proposed under all three scenarios for this station, which is at the edge of old downtown Littleton.

Ridge — Ridge Road at railroad and S. Santa Fe Drive

LOCATION



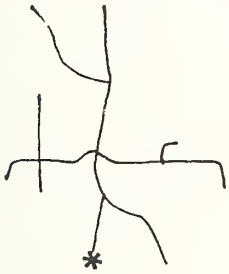
PROGRAMMED USE

CONSERVATIVE	MODERATE	AGGRESSIVE
Lease Concession	Lease Concession	Lease Concession
3,000 S.F.	3,000 S.F.	3,000 S.F.

New suburban development dominates the area. Station ridership will support leased concession space.

W. Mineral — W. Mineral Avenue and railroad at S. Santa Fe Drive

LOCATION



PROGRAMMED USE

CONSERVATIVE	MODERATE	AGGRESSIVE
Land Lease	Land Lease	Land Lease
Campus office 90,000 S.F. Mid dens.str. pk. 63,000 S.F.	Campus office 90,000 S.F. Mid dens.str. pk. 63,000 S.F.	Campus office 90,000 S.F. Mid dens.str.pk. 63,000 S.F.

Because of the availability of land and the proximity of low- and medium-density residential development at the West Mineral station, campus-type office development was proposed. Land leases were analyzed under all three scenarios.

NORTH LINE

44th Avenue — I-25 at 44th Avenue just south of I-70 junction

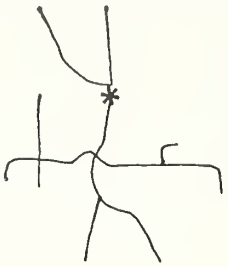
Low-density industrial development in the vicinity of both the 44th Avenue and the 58th Avenue stations makes further development infeasible at this time. No value capture mechanism was proposed.

58th Avenue — I-25 at 58th Avenue exit

No value capture mechanism was proposed (see above).

Broadway — Broadway at Denver-Boulder Turnpike just west of I-25

LOCATION



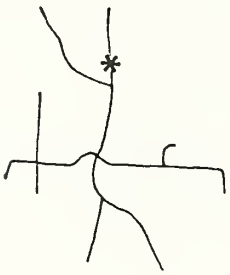
PROGRAMMED USE

CONSERVATIVE	MODERATE	AGGRESSIVE
		Land Lease
		Campus office 90,000 S.F.
		Mid dens.str.pk. 43,900 S.F.

At this site, located near the junction of I-25 and the Boulder Turnpike, density of development increases. Low-rise offices adjoin the station site and low-density residential areas are nearby. A land lease arrangement is proposed under the aggressive scenario for this transitional site. Campus type offices and parking are proposed. Property acquisition by RTD is assumed.

84th Avenue — I-25 at 84th Avenue exit

LOCATION



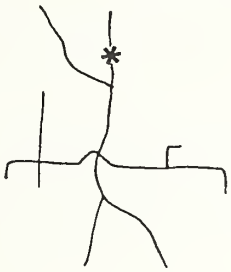
PROGRAMMED USE

CONSERVATIVE	MODERATE	AGGRESSIVE
		Land Lease
		Campus office 35,000 S.F.
		Mid dens.str.pk. 15,000 S.F.
		Mid dens.srf.pk. 27,600 S.F.

A small amount of office, retail, and parking space is programmed as a land lease in the aggressive scenario. The station site is near a community shopping center in a suburban residential area. Property acquisition by RTD is assumed.

88th Avenue — I-25 at 88th Avenue exit

LOCATION



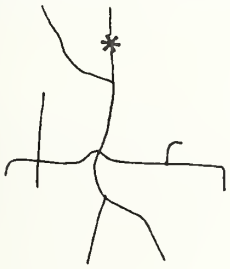
PROGRAMMED USE

CONSERVATIVE	MODERATE	AGGRESSIVE
		Land Lease
		Low rise office 35,000 S.F.
		Com. retail 15,000 S.F.
		Mid dens.srf.pk. 27,600 S.F.

This station is located in an area of scattered low-density residential and office uses. A land lease is proposed under the aggressive scenario, in which property would be acquired by RTD.

Thornton — I-25 south of 96th Avenue

LOCATION



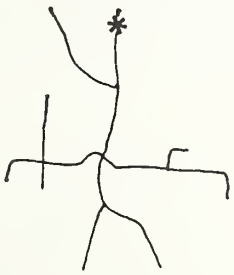
PROGRAMMED USE

CONSERVATIVE	MODERATE	AGGRESSIVE
	Land Lease	Land Lease
	Low rise office 30,000 S.F.	Low rise office 30,000 S.F.
	Com. retail 15,000 S.F.	Com. retail 15,000 S.F.
	Mid dens.srf. pk. 32,000 S.F.	Mid dens.srf.pk. 32,000 S.F.

Because of the development of a municipal center near this site, office, retail, and parking development is proposed under both the moderate and aggressive alternatives. Land leases would be implemented for both, and would be purchased by RTD.

Northglenn — I-25 at 104th Avenue exit near Northglenn Mall

LOCATION



PROGRAMMED USE

CONSERVATIVE	MODERATE	AGGRESSIVE
		Turnkey
		Regional retail 100,000 S.F.
		Station 20,000 S.F.

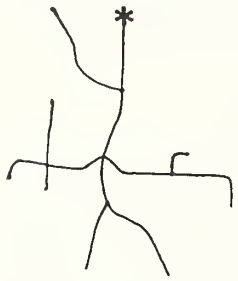
The Northglenn station site is adjacent to a major regional shopping mall. In anticipation of the eventual expansion of the mall, a turnkey package is proposed here as an aggressive development strategy.

112th Avenue — I-25 at 112th Avenue

Because of its proximity to the Northglenn Mall, and because Northglenn Mall offers more value capture potential, this station site was not considered available for development. No value capture mechanism was proposed.

Wagon Road — I-25 at 120th Avenue exit

LOCATION



PROGRAMMED USE

CONSERVATIVE	MODERATE	AGGRESSIVE
Land Lease	Land Lease	Land Lease
Low rise office 30,000 S.F.	Low rise office 30,000 S.F.	Campus office 90,000 S.F.
Com. retail 15,000 S.F.	Com. retail 15,000 S.F.	Com. retail 30,000 S.F.
Mid dens.srf.pk. 32,000 S.F.	Mid dens.srf.pk. 32,000 S.F.	Mid dens.str.pk. 63,000 S.F.

RTD currently operates a park-and-ride facility on land leased from the state in the vicinity of the proposed station. The possibility of acquiring this property, either through purchase or as a donation from the state, should be investigated by RTD. RTD may be restricted in the use of the land once it has been purchased; however, the state also may wish to specify restrictions on its use as a condition of the sale or transfer of the property. In the analysis, it was assumed that RTD would retain the park-and-ride site and acquire additional land for leasing purposes.

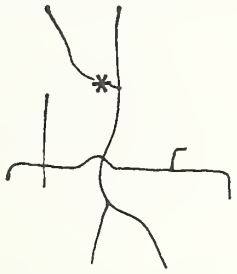
RTD should consider the use of UMTA's Advanced Land Acquisition Loan Program to finance the purchase of the park-and-ride property from the state. This program is discussed in the section on the Belleview station.

There presently is little development at the Wagon Road site, but a business park is planned and more residential development can be expected as a result of the station location here. Land leases are proposed under all three scenarios, because of the availability and low cost of available property.

TURNPIKE LINE

Pecos — Denver-Boulder Turnpike at Pecos Street

LOCATION



PROGRAMMED USE

CONSERVATIVE	MODERATE	AGGRESSIVE
Land Lease	Land Lease	Land Lease
Neighbrhd. ret. 5,000 S.F.	Com. retail 15,000 S.F.	Com. retail 15,000 S.F.
Low dens. srf. pk. 3,750 S.F.	Low dens. srf. pk. 11,100 S.F.	Low dens.srf.pk. 11,100 S.F.

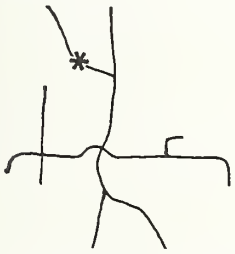
Some development at this site would be compatible with existing commercial and office uses nearby, and could be supported by the anticipated ridership. A small amount of development is proposed under the conservative land lease alternative. The moderate and aggressive scenarios assume additional property acquisition by RTD.

Westminster — Denver-Boulder Turnpike at Federal Boulevard

An insufficient amount of land is available for development at the Westminster station, other than for the station facility itself, and, thus, concession space is not considered viable. Therefore, no value capture mechanism was proposed.

W. 80th — Denver-Boulder Turnpike at W. 80th Avenue

LOCATION



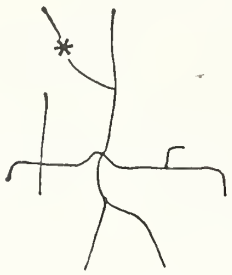
PROGRAMMED USE

CONSERVATIVE	MODERATE	AGGRESSIVE
Lease Concession	Lease Concession	Lease Concession
2,000 S.F.	2,000 S.F.	2,000 S.F.

No land is available for associated development at this site, but the established residential area should support a concession within the station facility. Leased concession space is proposed for all three development postures.

Hallack Junction — Denver-Boulder Turnpike at Sheridan Boulevard near Westminster Mall

LOCATION



PROGRAMMED USE

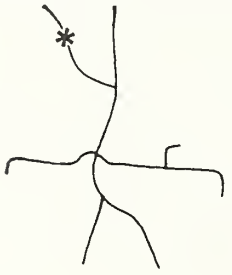
CONSERVATIVE	MODERATE	AGGRESSIVE
		Turnkey
		Regional retail 100,000 S.F.
		Facility 20,000 S.F.

RTD currently operates a park-and-ride facility on land leased from the state in the vicinity of the proposed station. The possibility of acquiring this property should be investigated by RTD.

Because this site is adjacent to Westminster Mall, a major regional shopping center, it can support substantial retail development, as expansion space is needed for the shopping area. A turnkey approach is proposed here for development of retail space and the station facility under an aggressive scenario.

W. 96th

LOCATION



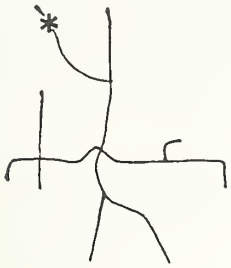
PROGRAMMED USE

CONSERVATIVE	MODERATE	AGGRESSIVE
Lease Concession	Lease Concession	Land Lease
2,000 S.F.	2,000 S.F.	Com. retail 30,000 S.F.
		Low dens.srf.pk. 22,500 S.F.

A substantial amount of land is available near this site, but existing residential development is so scattered that it may not support much new commercial development. Therefore, station concessions were proposed under the conservative and moderate scenarios, while the aggressive alternative includes a land lease to support commercial development and parking. Property acquisition by RTD is required for this alternative.

W. 104th

LOCATION



PROGRAMMED USE

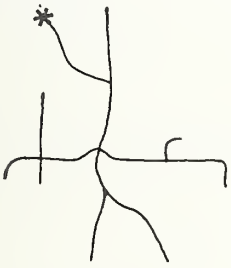
CONSERVATIVE	MODERATE	AGGRESSIVE
Lease Concession	Lease Concession	Land Lease
2,000 S.F.	2,000 S.F.	Com. retail 30,000 S.F. Low dens.srf.pk. 22,500 S.F.

As at the West 96th site, a substantial amount of land is available, but demand for local development is slight. The aggressive scenario assumes site acquisition by RTD for a land lease agreement, while the moderate and conservative scenarios employ only concession leases.

W. 112th

Denver-Boulder Turnpike at Wadsworth Boulevard (Broomfield exit)

LOCATION



PROGRAMMED USE

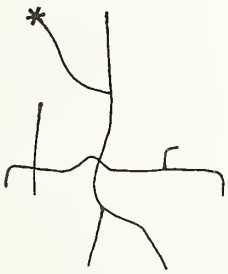
CONSERVATIVE	MODERATE	AGGRESSIVE
Land Lease	Land Lease	Land Lease
Neighbrhd. ret. 5,000 S.F. Mid dens.srf. pk. 3,750 S.F.	Neighbrhd. ret. 5,000 S.F. Mid dens.srf. pk. 3,750 S.F.	Com. retail 30,000 S.F. Low dens.srf. pk. 22,500 S.F.

Availability of land and proximity to Broomfield make this a likely growth area. Accordingly, retail and parking development are proposed under a land lease arrangement in all three scenarios. The aggressive alternative requires further property acquisition by RTD.

Broomfield

Denver-Boulder Turnpike at Route 121/ Broomfield exit

LOCATION



PROGRAMMED USE

CONSERVATIVE	MODERATE	AGGRESSIVE
Land Lease	Land Lease	Land Lease
Campus office 90,000 S.F. Mid dens.srf.pk. 54,000 S.F.	Campus office 90,000 S.F. Mid dens.srf.pk. 54,000 S.F.	Campus office 90,000 S.F. Mid dens.srf.pk. 54,000 S.F.

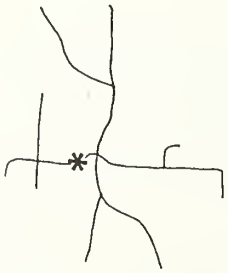
RTD owns 75 acres in the vicinity of this proposed station. Plans for future use of this land will require consideration of any restrictions on its use, as determined by the conditions under which the land was acquired. For instance, if federal funds were used to purchase the land, RTD may be restricted in how it develops the land or may be required to remit joint development-derived revenues to the federal government.

Land leases are proposed under all three development scenarios for this site, which is located in an area of scattered commercial development.

WEST LINE

Sports Complex — Just east of McNichols Sports Arena

LOCATION



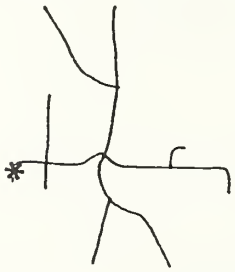
PROGRAMMED USE

CONSERVATIVE	MODERATE	AGGRESSIVE
		Turnkey
		Corporate hotel 300,000 S.F.
		Station 20,000 S.F.

A turnkey project is proposed under the aggressive scenario for hotel and station facility development at this site, which is adjacent to McNichols Arena.

W. 8th — W. 8th Avenue at railroad west of Quail Street

LOCATION



PROGRAMMED USE

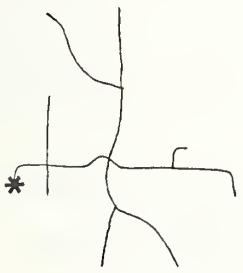
CONSERVATIVE	MODERATE	AGGRESSIVE
		Assess. District
		Mid rise office 300,000 S.F.
		Mid dens.str.pk. 195,000 S.F.

This station is located in a largely vacant area which can support new development because of its proximity to the Denver Federal Center and its location within the Westland Activity Center.

Under an aggressive approach, a new Metropolitan District would be created to finance station development, as well as on-going operating and maintenance costs. Colorado law authorizes the creation of Metropolitan Districts for the purpose of assisting with financing transportation infrastructure improvements. Projected land uses at this station would justify creation of a Metropolitan District which would finance infrastructure from which the area will benefit.

Cold Spring — At Denver Federal Center

LOCATION



PROGRAMMED USE

CONSERVATIVE	MODERATE	AGGRESSIVE
Land Lease	Joint Venture	Joint Venture
Campus office 90,000 S.F.	Campus office 90,000 S.F.	Mid rise office 200,000 S.F.
Mid dens. srf.pk. 54,000 S.F.	Mid dens. srf.pk. 54,000 S.F.	Mid dens. str.pk. 97,500 S.F.

The Cold Spring station is located adjacent to the Denver Federal Center, the largest employer in Jefferson County. The strong development market expected at this station makes it a good candidate for joint venture development, which is proposed in both the moderate and aggressive scenarios.

A land lease arrangement is proposed under the conservative scenario. Property acquisition by RTD is required for all three scenarios.

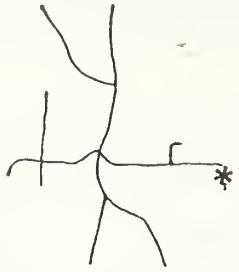
Other West Line Stations — Federal Boulevard to Westland Shopping Center

No value capture mechanisms were proposed for the Federal, Lowell, Sheridan, Pierce, Wadsworth, Estes, or Kipling station sites. Federal, Lowell, and Sheridan are located along the Associated Railroad near or on 12th Avenue. This area is primarily residential, with strip commercial development nearby. The existence of strip commercial development along Colfax Avenue, where the remaining West Line sites are situated, makes those station areas infeasible as competitors for the development market. The Westland and Pierce sites are close to major shopping centers, but their exact locations are not well sited, insofar as defined, to take advantage of that proximity.

EASTLINE

6th Avenue — I-225 at E. 6th Avenue exit

LOCATION



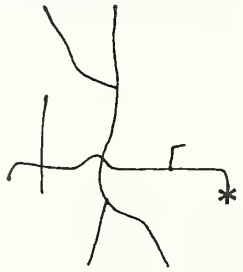
PROGRAMMED USE

CONSERVATIVE	MODERATE	AGGRESSIVE
		Land Lease
		Low rise office 30,000 S.F.
		Com. retail 18,000 S.F.
		Low dens.srf.pk. 27,000 S.F.

The site for this station is somewhat small, but its location in the fast-growing city of Aurora makes it viable for development under an aggressive scenario. A land lease on property purchased by RTD is proposed for low-density development. More intense development would not be likely, due to the proximity of Aurora Mall and the proposed Center Point development.

Aurora — I-225 at E. Alameda Avenue near Aurora Mall

LOCATION



PROGRAMMED USE

CONSERVATIVE	MODERATE	AGGRESSIVE
Land Lease	Tax Incr. Fin.	Tax Incr. Fin.
Campus office 90,000 S.F.	Campus office 90,000 S.F.	Campus office 90,000 S.F.
Mid dens.srf. pk. 54,000 S.F.	Com. retail 30,000 S.F.	Com. retail 30,000 S.F.
	Low dens.srf. pk. 76,500 S.F.	Low dens.srf.pk. 76,500 S.F.

Immediately adjacent to Aurora Mall and the designated Aurora activity center, this site has potential for fairly substantial development within the suburban context. A lease arrangement on land acquired by RTD is proposed under the conservative scenario, and tax increment financing is suggested in the moderate and aggressive scenarios.

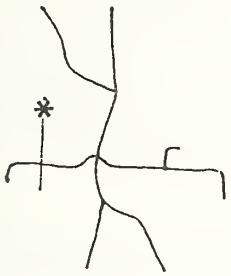
Other East Line Stations — East Colfax Avenue from Broadway to Peoria Street

The East Colfax corridor contains low-rise commercial use. Existing development is dispersed and much of it is of fairly low quality. It was felt that if existing development were in better condition and higher in density, enough people could be attracted to the corridor to make station area development feasible. However, given its poor potential at present, no value capture mechanism was proposed for the East Colfax corridor.

WADSWORTH LINE

Arvada

LOCATION



PROGRAMMED USE

CONSERVATIVE	MODERATE	AGGRESSIVE
	Tax Incr. Fin.	Tax Incr. Fin.
	Low rise office 30,000 S.F.	Low rise office 30,000 S.F.
	Neighbrhd retail 20,000 S.F.	Neighbrhd retail 20,000 S.F.
	Low dens.srf.pk. 33,000 S.F.	Low dens.srf.pk. 33,000 S.F.

This station is located near old downtown Arvada, within the designated Arvada activity center. There is the potential for low-density development which would be consistent with the existing scale of the area.

In a moderate scenario, tax increment financing could be used to finance development under existing legislation. This would allow the station to be used in town center development/ redevelopment as planned in this area. An aggressive scenario would require modifications to existing tax increment financing legislation, which would allow more flexibility in determining the extent of the area eligible to be included in the tax increment financing district.

Lakewood

Wadsworth Boulevard and Alameda Avenue near Villa Italia shopping center

LOCATION

PROGRAMMED USE

CONSERVATIVE	MODERATE	AGGRESSIVE
Land Lease	Joint Venture	Joint Venture
Mid rise office 175,000 S.F.	Mid rise office 175,000 S.F.	Mid rise office 175,000 S.F.
Mid dens.str.pk. 122,500 S.F.	Mid dens.str.pk. 122,500 S.F.	Mid dens.str.pk. 122,500 S.F.

Lakewood (cont'd)

Tax Incr. Fin.

Mid rise office
1,200,000 S.F.
Regional retail
1,700,000 S.F.
Mid dens. res.
3,465,000 S.F.
Mid dens.str.pk.
840,000 S.F.

The Lakewood station is situated on an excellent site in an area with strong market potential. The area has been designated an activity center, and the city of Lakewood actively has encouraged appropriate development there.

A lease arrangement is proposed for land acquired by RTD in the conservative scenario. Because of RTD's potentially strong bargaining position, joint venture opportunities should be pursued and are proposed in the moderate and aggressive scenarios.

Tax increment financing is not currently available to assist in development at this site, because existing legislation requires that the area be an urban renewal area. Thus, it is recommended that legislative changes be pursued to enable the use of this financing mechanism to support major development; and this is proposed under the aggressive alternative along with joint development.

Other Wadsworth Line Stations — W. 6th Avenue to W. 64th Avenue

Nine other stations are proposed along the Wadsworth corridor. Mechanisms for their development were proposed and analyzed, but were judged unfeasible. No value capture mechanisms are proposed for the West 64th, West 52nd, West 44th, Wheatridge, West 32nd, West 26th, West 20th, Wadsworth, or West 4th stations.

DOWNTOWN STATIONS

Metro — 16th and California Streets

LOCATION	PROGRAMMED USE		
	CONSERVATIVE	MODERATE	AGGRESSIVE
		Assess. District	Air Rights Lease
		Regional retail 120,000 S.F.	Regional retail 120,000 S.F.

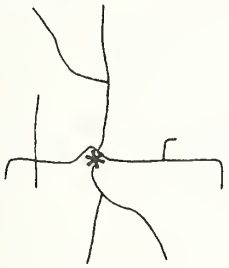
Located in the "heart" of the Central Business District, this station is the major intersection of the north-south and east-west lines. A large regional retail development is proposed, which would reinforce existing uses nearby and would be compatible with the Sixteenth Street Mall.

A special benefits assessment district is proposed under the moderate scenario. This district would overlap with the mall district, which presently extends one-half block on each side of Sixteenth Street. This proposal likely will be politically unpopular, given the difficulties which arose over passage of the Mall District.

The aggressive scenario recommends an air rights lease. This alternative requires stronger negotiation on the part of RTD, but has potential for higher profit.

Convention Center — 13th and California Streets

LOCATION



PROGRAMMED USE

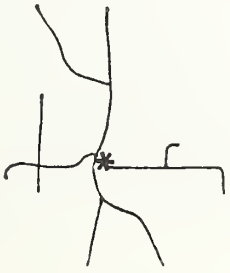
CONSERVATIVE	MODERATE	AGGRESSIVE
	Assess. District	Air Rights Lease
	High rise office 1,000,000 S.F.	High rise office 1,000,000 S.F.
	Office retail 20,000 S.F.	Office retail 20,000 S.F.
	Luxury hotel 300,000 S.F.	Luxury hotel 300,000 S.F.

The area around Currigan Hall has been subject to much speculation and scrutiny in recent months, especially in light of the decision to redevelop Union Station. The blocks south and east of Currigan Hall are underdeveloped and, as such, have a significant potential for development.

The two mechanisms proposed for use at the Metro site also were applied here. A special benefits assessment district is proposed under the moderate scenario, and an air rights lease is proposed as an aggressive approach. Land acquisition would be required.

Civic Center — 16th Street and Broadway

LOCATION



PROGRAMMED USE

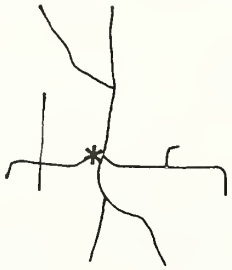
CONSERVATIVE	MODERATE	AGGRESSIVE
	Air Rights Lease	Joint Venture
	Office retail 20,000 S.F.	Office retail 20,000 S.F.
	Luxury hotel 300,000 S.F.	Luxury hotel 300,000 S.F.

RTD's bus transfer facility already is located at the Civic Center site, which is located at the southeast end of the Sixteenth Street Mall in the downtown B-5 zone district. An office building has already been developed on the northern portion of the site as a joint venture with bus station development underground. In the moderate scenario, air rights leasing is proposed for hotel development at the southern end of the site. An aggressive posture would be to develop the hotel as a joint venture.

The view plane which extends from the State Capitol building affects development on this site, limiting the bulk of new structures.

Skyline — 16th and Market Streets

LOCATION



PROGRAMMED USE

CONSERVATIVE	MODERATE	AGGRESSIVE
	Assess. District	Air Rights Lease
	High rise office 200,000 S.F.	High rise office 200,000 S.F.
	Hi dens.str. pk. 70,000 S.F.	Hi dens.str. pk. 70,000 S.F.

This site is composed of the northwest end of the Sixteenth Street Mall, which is in the B-7 zone district of lower downtown. Zoning in this area is quite a bit more restrictive than the B-5 zoning, which governs development of the other downtown sites.

The moderate approach proposed here is a special benefits assessment district. Similar to the situation at the Metro site, passage of a district may be difficult because of potential overlap with the Sixteenth Street Mall district.

An aggressive approach to development of this site would be to use air rights leasing.

Other Downtown Stations

The remaining stations in the downtown area are the Rail Yards, Union Station, Larimer, Federal Complex, and Auraria Stations. These are all in areas where uncertainty exists as to prospects for any future development. The Rail Yards and Larimer Stations are in areas of decay surrounding the central business district. Although the Union Station may be an excellent prospect for value capture, the proposed convention center development/redevelopment at that site had not been announced in time to include Union Station in this analysis.

Chapter 7
Conclusions

The result of the cash flow analysis of station area developments detailed in Chapter 6 shows a significant range of revenues which RTD may receive following one or another value capture approach. The range of revenues under the conservative, moderate, and aggressive scenarios, varies from $16 million to $346 million (in 1982 dollars). The accumulated revenues over the 1983-2010 period are shown in Table 7.1, assuming a 7% inflation rate and using discount rates of 0% (current dollars), 7% (constant dollars) and 13% (future value of dollars).

TABLE 7.1
SUMMARY OF VALUE CAPTURE REVENUES 1983-2010

	Accumulated (Current) Dollars Discounted at 0%	Accumulated Dollars Discounted at 7%	Accumulated Dollars Discounted at 13%
Conservative Scenario	$ 93,726,000	$ 16,364,000	$ 3,744,000
Moderate A Scenario	$ 501,928,000	$105,696,000	$ 33,147,000
Moderate B Scenario	$ 423,287,000	$ 87,049,000	$ 26,704,000
Aggressive A Scenario	$1,790,139,000	$384,580,000	$124,839,000
Aggressive B Scenario	$1,633,416,000	$345,936,000	$111,160,000

A range of 1% to 7% of the total system cost of $2.004 billion (in 1982 dollars) may be paid for with value capture revenues. The aggressive scenario estimates may be inflated, because the aggressive scenario includes the greatest number of tax increment financing districts which generate significant revenues. In the moderate and aggressive "B" scenarios, tax increment revenues were constrained to match debt service and political considerations, while in the "A" scenarios these constraints were removed. While the collection of tax increment revenues usually does not exceed annual debt service,

for purposes of estimating revenue potential, those estimates reflect all ad valorem taxes that could be collected on the incremental base. Therefore, these revenues are possibly higher than the amount that would be required.

Perhaps of more significance is the fact that year by year coverage of system capital costs increases in future years (1990-2000), and thus that pursuit of an aggressive value capture program by RTD may require a net cash investment in early years of system development. Because detailed station designs are not prepared at this time, it is difficult to determine if land or air rights required for value capture are indeed supple- mental to those required for transit facilities. In this forecast of value capture revenues, we have assumed payment for the cost of rights as a part of the forecasts.* Thus, the cash outflows are high in early years. Table 7.2 summarizes these yearly projections in current dollars. The analysis assumes that no value capture techniques will be undertaken until the first station is operational, 1988.

Year by year projections for each station appear in the appendix to this report. In addition, an example of the pro forma analysis used appears in the appendix in a description of the Joint Center's cash flow modeling procedures.

Observations/Recommendations

As RTD and Denver leaders search for funds to construct the LRT system, several observations from this value capture analysis should prove useful.

1. Value capture can potentially defray a modest but helpful portion of system cost and, therefore, should be pursued as one form of local revenue. The flow of income from value capture is irregular and suggests the use of debt in early years of system development to cover potential value capture outlays.

2. Significantly higher levels of value capture revenue may be obtained through a more aggressive program of value capture. This suggests that the investment of administrative and political time and costs in pursuit of a more aggressive program may well be worthwhile. The aggressive scenario yields over twenty times the revenues of the conservative scenario. This suggests that legislative and zoning changes required to make the aggressive scenario

---

*The exception to this is station concessions, for which the cost of the land is excluded. Concession facilities presumably would be leased in a station or on land which would have been purchased already to build the station structures.

TABLE 7.2
LRT SYSTEM COST AND PROJECTED VALUE CAPTURE REVENUES
(millions of dollars undiscounted)

Year	3-C Alternative III Cost	Conservative	Moderate A	Moderate B	Aggressive A	Aggressive B
1983	14.1	0.0	0.0	0.0	0.0	0.0
1984	101.7	0.0	0.0	0.0	0.0	0.0
1985	228.3	0.0	0.0	0.0	0.0	0.0
1986	299.2	0.0	0.0	0.0	0.0	0.0
1987	343.5	0.0	0.0	0.0	0.0	0.0
1988	282.9	-3.198	-1.805	-2.221	-4.5218	-4.978
1989	150.0	3.518	3.518	2.884	5.9936	5.310
1990	142.0	-.944	2.673	1.805	-14.6462	-15.566
1991	207.3	.805	6.264	5.152	14.3828	13.208
1992	333.2	.870	7.439	6.064	15.6585	14.216
1993	435.4	.938	8.685	7.033	17.9581	16.233
1994	370.2	-1.546	9.796	7.852	20.2826	18.255
1995	391.3	1.394	11.358	9.103	23.7465	21.400
1996	477.3	-1.051	13.112	10.463	25.4979	22.749
1997	464.8	1.916	14.885	11.843	29.8584	26.707
1998	355.5	.012	-12.455	-15.918	43.4271	37.165
1999	122.9	-.354	23.569	19.642	50.6714	43.634
2000		3.044	26.235	21.796	54.2546	46.374
2001		3.267	29.068	24.087	62.0964	53.322
2002		3.507	32.079	26.522	67.1836	57.459
2003		3.763	35.279	29.112	74.9045	64.173
2004		4.038	38.768	31.864	81.8458	70.042
2005		4.331	42.292	34.790	89.2325	76.295
2006		4.645	46.133	37.902	97.1000	82.956
2007		4.981	50.214	41.209	105.4788	90.054
2008		5.437	54.648	44.824	115.6240	98.840
2009		5.822	59.258	48.564	125.1256	106.897
2010		49.546*	186.993	175.376*	667.7383*	667.408*

* Year 2010 revenues reflect 10% capitalization of land leases to estimate continued revenue streams beyond 2016.

possible should be pursued. However, it should be cautioned that the higher rates of return assumed in the aggressive scenario assume a strong real estate market.

3. Generally speaking, the taxation mechanisms are more financially productive than the land leases or joint development deals. This suggests further inquiries by RTD into extension of the Metropolitan District or the Tax Increment District concepts to new applications. The Metropolitan District mechanism is somewhat unique, and due to its provisons, provides an unusually attractive mechanism for financing station and station area developments.

4. Clearly, RTD should focus its attention on development rights leases and joint development projects in the downtown and southeast Denver areas where greater development densities will secure higher returns per square foot of land or air space. Observing the complexity of the Transportation Center air rights lease indicates substantial administrative costs which should be offset by as great as possible lease or project revenues.

5. Attention to station siting to allow for increased station joint development should be considered. RTD's general practice of using highway right-of-way is advantageous from an acquisition standpoint but does not always provide an easily developable parcel at each station site. Siting considerations will avoid precluding future station joint development or lease transactions.

6. Station concessions should not be overlooked as a revenue source even though they produce a modest income stream. The stream is substantial enough to suggest that an efficient station design be developed to allow for leased retail activities in virtually any station. In this analysis, an average station concession of 2,000 square feet generated a total of $1.6 to $2.3 million over a 12-year period. Lease revenues will clearly offset added costs of the facility construction within the station.

Appendix A

Description of the Cash Flow Model

The cash flow model used in this type of value capture analysis determines the amount of revenue that transit a agency can generate on an annual and cumulative basis by various value capture techniques. The model has the capacity to evaluate the profitability of six different scenarios using the same data base from the perspective of either the private investor, the transit agency, or both. The model also has the capacity to analyze a proposed project with more than one scenario and more than one participant (e.g. one or more private investors, with or without the transit agency).

The scenarios are:

- Develop/Lease - in which the transit agency acquires land for station development and/or adjacent development, develops the site, and leases the facilities to private investors.

- Develop/Sell - in which the transit agency acquires adjacent land, develops the site, and sells the facilities to private investors.

- Lease - in which the transit agency leases undeveloped air rights or land within the station site to private investors.

- Sale - in which the transit agency holds air rights or adjacent land for a period time before selling the property.

- Special Benefit Assessment - in which the transit agency finances the cost of construction using revenues from assessments collected from property owners within a predetermined district, considered to be benefitting directly from the transit improvements.

- Tax Increment Financing (TIF) - in which the transit agency finances the cost of construction using property tax revenues collected on the increase in property values attributable to the development of the transit system. The TIF District is usually larger than the special benefit assessment district which includes only those properties directly benefitting from the transit system.

Input

To evaluate the cash flow of different scenarios, three computer programs were developed: (1) a sale model,

representing a sale of properties, (2) an income model, representing a lease of properties which generates a stream of income over a fixed term, and (3) a tax model, representing the special benefit and tax increment financing methods of taxation. These computer programs analyze the "flow" of dollars over a fixed term generated by a given land use project at a specific station. The programs take into account such factors as the tax status of participants, capital gains realized from property sales, and inflation rates, as well as depreciation of the project, amortization of debt, and conditions of the local real estate market. Hence, the programs analyze a project for a transit agency by the same methods used by private sector real estate developers and investors.

A number of input factors are needed to perform cash flow analysis. These factors are based on economic and financial assumptions about market demand for various land uses, about inflation and interest rates, and on legal assumptions about the authority of the transit agency to purchase, lease, sell or tax property. In general, the models require the following input:

1) The land uses proposed for development in terms of square footage of building requirements.

2) Land costs.

3) Project construction costs.

4) Cost, term, and amount of money borrowed to construct the facilities.

5) Marketability and vacancy rates.

6) Years in which the project is to be completed and sold.

7) Income and capital gains tax rates of the participants (which is assumed to be 0%, if it is the transit agency, since government entities are tax exempt).

8) Inflation rates for construction, expenses, and land costs.

9) Local tax rates.

Output

The computer programs produce results which can be used to evaluate the profitability of the investment on an annual and cumulative basis. It also calculates the net present value of

the total accumulated cash flow for a variety of discount rates. For projects that involve leases, the program calculates:

- Net Operating Income: the amount of dollars which the project generates annually.
- Cash Flow After Taxes: the amount of annual income after taxes.
- Cash Rate of Return: the ratio of net operating income to total investment.
- Internal Rate of Return: the discount rate at which the sum of the discounted costs and revenues equals zero.

For projects that involve sales, the program calculates:

- Revenue at Sale: the amount of dollars for which the property can be sold in a particular year.
- Proceeds After Tax: the net revenue which the project generates at sale, minus capital gains, ordinary income taxes, sale related expenses, and the outstanding mortgage balance.
- Return on Equity: the ratio of the owner's net proceeds after tax to the owner's initial investment in the project.

For the taxation scenarios, the program calculates:

- Total Tax Base: the assessed value of the properties within the taxing jurisdiction, including existing and new improvements and increases in land values.
- Special Benefit Assessment Revenues: revenues collected from the special assessment on property values.
- Tax Increment Revenues: the revenues collected by the property tax on the increase in the total tax base for a given year over the total tax base in the predetermined base year.

SAMPLE CASH FLOW MODEL COMPUTER PRINTOUT
FOR A SINGLE VALUE CAPTURE CASE STUDY

```
****************************
COLDSPRING JOINT VENTURE
DATA FOR THIS PART
****************************

THE BASE YEAR FOR THIS ANALYSIS IS 1983
YR OPENING        1994
TR ANA COMP.      2010
YEAR OF SALE      2010
NO.OF YEARS         17
DEVEL.USES           2
NO.OF PARTNR         2

% VACANCY          5.00
CAP. RATE         10.00
MORT:VAL.RTO     100.00
MTG.TERM          20.00
% L.T. INTRS      12.00
% RECAP@SALE     100.00
% SALE COST        5.00
$EQUITY PAID       0.0
LANDCOS.$/SF      15.00
KSF PAR.SIZE      90.00
$ DEMOL.COST       0.0

NO. OF IT.            0
MIN. ROR            0.0
MAX. ROR            0.0
% CHG.LEASE         0.0


FOR EACH PARTNER:

PARTNER NO.           1
% SHARE           25.00
% INCOME TAX       0.0
% CAP.GAINS        0.0

PARTNER NO.           2
% SHARE           75.00
% INCOME TAX      50.00
% CAP.GAINS       25.00

DEVELOPMENT PROGRAM:

CAMPUS OFF DTC TYPE    90000.
MID. DEN. SURF. PARK   54000.
```

COLDSPRING JOINT VENTURE --- INCOME ANALYSIS ($ X 1000)

PREV.EQUITY ASSUMED: 0. COMPUTED EQUITY: 585.
TOTAL COST OF PROJ.: 8208. COMPUTED MOR-VAL RTO. 100.00

PERIOD	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
GROSS INC.	1162.8	1244.2	1331.3	1424.5	1524.2	1630.9	1745.0	1867.2	1997.9	2137.7
OPER EXP.	400.5	428.5	458.5	490.6	525.0	561.7	601.0	643.1	688.1	736.3
OPER.INCOME	762.3	815.7	872.8	933.8	999.2	1069.2	1144.0	1224.1	1309.8	1401.4
FIRST-AMORT	105.8	118.5	132.7	148.6	166.5	186.5	208.8	233.9	262.0	293.4
INTRST	914.8	902.1	887.8	871.9	854.1	834.1	811.7	786.7	758.6	727.2
DEPRECIATION	457.2	457.2	457.2	457.2	457.2	457.2	457.2	457.2	457.2	457.2
TAXABLE INC	-609.7	-543.6	-472.3	-395.3	-312.1	-222.1	-124.9	-19.8	94.0	217.1
TAX BENEFIT	-228.6	-203.9	-177.1	-148.2	-117.0	-83.3	-46.8	-7.4	35.2	81.4
PRETAX C.F.	-258.3	-204.9	-147.8	-86.7	-21.3	48.6	123.4	203.5	289.2	380.9
C.F.AFT TAX	-29.6	-1.0	29.3	61.5	95.7	131.9	170.3	210.9	254.0	299.5
ROR (CASH)	-44.147	-35.026	-25.266	-14.823	-3.649	8.308	21.101	34.790	49.437	65.109
ROR (CASH)										
PARTNER- 1	-44.1	-35.0	-25.3	-14.8	-3.6	8.3	21.1	34.8	49.4	65.1
PARTNER- 2	-44.1	-35.0	-25.3	-14.8	-3.6	8.3	21.1	34.8	49.4	65.1
INC.-F&C										
PARTNER- 1	190.6	203.9	218.2	233.5	249.8	267.3	286.0	306.0	327.4	350.4
PARTNER- 2	571.7	611.7	654.6	700.4	749.4	801.9	858.0	918.1	982.3	1051.1

PERIOD		2004	2005	2006	2007	2008	2009	2010
GROSS INC.		2287.4	2447.5	2618.8	2802.1	2998.3	3208.2	3432.7
OPER EXP.		787.8	843.0	902.0	965.1	1032.7	1105.0	1182.3
OPER.INCOME		1499.5	1604.5	1716.8	1837.0	1965.6	2103.2	2250.4
FIRST-AMORT		328.6	368.0	412.2	461.7	517.1	579.1	648.6
INTRST		692.0	652.5	608.4	558.9	503.5	441.5	372.0
DEPRECIATION		457.2	457.2	457.2	457.2	457.2	0.0	0.0
TAXABLE INC		350.4	494.8	651.3	820.9	1004.9	1661.7	1878.4
TAX BENEFIT		131.4	185.5	244.2	307.8	376.8	623.1	704.4
PRETAX C.F.		479.0	584.0	696.3	816.4	945.0	1082.6	1229.8
C.F.AFT TAX		347.6	398.4	452.0	508.6	568.2	459.5	525.4
ROR (CASH)		81.878	99.822	119.021	139.564	161.545	185.065	210.231
ROR (CASH)								
PARTNER-	1	81.9	99.8	119.0	139.6	161.5	185.1	210.2
PARTNER-	1	81.9	99.8	119.0	139.6	161.5	185.1	210.2
PARTNER-	2	81.9	99.8	119.0	139.6	161.5	185.1	210.2
INC.-F&C								
PARTNER-	1	374.9	401.1	429.2	459.3	491.4	525.8	562.6
PARTNER-	2	1124.7	1203.4	1287.6	1377.8	1474.2	1577.4	1687.8

COLDSPRING JOINT VEN --- REVENUE AT SALE ANAL.($ X 1000)

PERIOD	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
REV AT SALE	7630.6	7634.7	7639.2	7644.0	7649.2	7654.8	7660.9	7667.5	7674.6	7682.3
BOOK VALUE	7750.8	7293.6	6836.4	6379.2	5922.0	5464.8	5007.6	4550.4	4093.2	3636.0
MORT.BAL	7517.2	7398.7	7266.0	7117.4	6950.9	6764.4	6555.6	6321.7	6059.7	5766.4
GR TX PROFIT	-233.6	105.1	429.6	738.2	1028.9	1299.6	1548.0	1771.3	1966.5	2130.4
S.T. RECAP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S.T.CAPGAIN	-233.6	105.1	429.6	738.2	1028.9	1299.6	1548.0	1771.3	1966.5	2130.4
TOT TAXES	-43.8	19.7	80.5	138.4	192.9	243.7	290.2	332.1	368.7	399.4
ORDINARY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CAP GAINS	-43.8	19.7	80.5	138.4	192.9	243.7	290.2	332.1	368.7	399.4
EXPN OF SALE	381.5	381.7	382.0	382.2	382.5	382.7	383.0	383.4	383.7	384.1
PROC AFT TAX	7292.9	7233.3	7176.7	7123.4	7073.8	7028.4	6987.6	6952.0	6922.1	6898.7
ACCTNG RETRN	6678.2	3323.6	2207.0	1650.0	1316.9	1095.9	939.0	822.2	732.3	661.3
ACCTNG RETRN										
PARTNER- 1	1741.5	856.6	561.6	414.1	325.5	266.5	224.3	192.6	168.0	148.3
PARTNER- 2	4996.0	2468.0	1625.8	1205.2	953.1	785.5	666.1	576.9	507.9	453.1

PERIOD	2004	2005	2006	2007	2008	2009	2010
REV AT SALE	7690.6	7699.6	7709.4	7720.0	7731.5	7726.9	7740.4
BOOK VALUE	3178.8	2721.6	2264.4	1807.2	1350.0	1350.0	1350.0
MORT.BAL	5437.8	5069.7	4657.5	4195.9	3678.8	3099.7	2451.1
GR TX PROFIT	2259.0	2348.1	2393.1	2388.7	2328.8	1749.7	1101.1
S.T. RECAP	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S.T.CAPGAIN	2259.0	2348.1	2393.1	2388.7	2328.8	1749.7	1101.1
TOT TAXES	423.6	440.3	448.7	447.9	436.7	328.1	206.5
ORDINARY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CAP GAINS	423.6	440.3	448.7	447.9	436.7	328.1	206.5
EXPN OF SALE	384.5	385.0	385.5	386.0	386.6	386.3	387.0
PROC AFT TAX	6882.5	6874.4	6875.2	6886.1	6908.3	7012.4	7146.9
ACCTNG RETRN	604.1	557.3	518.6	486.4	459.4	430.4	416.9
ACCTNG RETRN							
PARTNER- 1	132.2	118.9	107.6	97.9	89.6	83.5	78.4
PARTNER- 2	408.7	372.1	341.5	315.8	294.0	289.5	276.7

INTERNAL RATE OF RETURN: (PROJ.TERM. AT YEAR 10) 36.510 %
INTERNAL RATE OF RETURN: (PROJ.TERM. AT YEAR 17) 26.770 %

PERIOD		2004	2005	2006	2007	2008	2009	2010
GROSS INC.		2287.4	2447.5	2618.8	2802.1	2998.3	3208.2	3432.7
OPER EXP.		787.8	843.0	902.0	965.1	1032.7	1105.0	1182.3
OPER.INCOME		1499.5	1604.5	1716.8	1837.0	1965.6	2103.2	2250.4
FIRST-AMORT		328.6	368.0	412.2	461.7	517.1	579.1	648.6
INTRST		692.0	652.5	608.4	558.9	503.5	441.5	372.0
DEPRECIATION		457.2	457.2	457.2	457.2	457.2	0.0	0.0
TAXABLE INC		350.4	494.8	651.3	820.9	1004.9	1661.7	1878.4
TAX BENEFIT		131.4	185.5	244.2	307.8	376.8	623.1	704.4
PRETAX C.F.		479.0	584.0	696.3	816.4	945.0	1082.6	1229.8
C.F.AFT TAX		347.6	398.4	452.0	508.6	568.2	459.5	525.4
ROR (CASH)		81.878	99.822	119.021	139.564	161.545	185.065	210.231
ROR (CASH)								
PARTNER-	1	81.9	99.8	119.0	139.6	161.5	185.1	210.2
PARTNER-	1	81.9	99.8	119.0	139.6	161.5	185.1	210.2
PARTNER-	2	81.9	99.8	119.0	139.6	161.5	185.1	210.2
INC.-F&C								
PARTNER-	1	374.9	401.1	429.2	459.3	491.4	525.8	562.6
PARTNER-	2	1124.7	1203.4	1287.6	1377.8	1474.2	1577.4	1687.8

Appendix B

Station Site Development Programs

STATION	CONSERVATIVE	MODERATE	AGGRESSIVE
SOUTHEAST LINE			
SOUTH WASHINGTON	Lease Concession 2,000 S.F.	Lease Concession 2,000 S.F.	Lease Concession 2,000 S.F.
SOUTH DOWNING	Lease Concession 2,000 S.F.	Lease Concession 2,000 S.F.	Lease Concession 2,000 S.F.
SOUTH UNIVERSITY	Lease Concession 2,000 S.F.	Lease Concession 2,000 S.F.	Lease Concession 2,000 S.F.
SOUTH COLORADO		Tax Incr. Fin. High rise office 300,000 S.F. Com. retail 20,000 S.F. High dens. res. 400,000 S.F. Mid dens.str.pk. 174,000 S.F.	Tax Incr. Fin. High rise office 300,000 S.F. Com. retail 20,000 S.F. High dens. res. 400,000 S.F. Mid dens.str.pk. 174,000 S.F. Land Lease Mid rise off. 180,000 S.F. Off. retail 20,000 S.F. Com. retail 60,000 S.F.
YALE	Lease Concession 2,000 S.F.	Lease Concession 2,000 S.F.	Land Lease Campus office 90,000 S.F. Com. retail 15,000 S.F. Mid dens.str.pk. 65,000 S.F.

STATION	CONSERVATIVE	MODERATE	AGGRESSIVE
SOUTHEAST LINE, CONTINUED			
SOUTHMOOR		Land Lease Low rise office 30,000 S.F. Com. retail 30,000 S.F. Mid dens.srf.pk. 20,250 S.F.	Land Lease Campus office 90,000 S.F. Neighbrhd retail 15,000 S.F. Mid dens. res. 42,000 S.F. Mid dens.str.pk. 77,000 S.F.
BELLEVIEW			Turnkey Station facility 20,000 S.F. Bridge 1,000 Land lease Mid rise off. 300,000 S.F. Com. retail 30,000 S.F. Mid dens.str.pk. 178,500 S.F. Assess. District High rise office 250,000 S.F. Regional retail 1,000,000 S.F. Luxury hotel 400,000 S.F. Mid dens.str.pk. 1,400,000 S.F.
GREENWOOD		Assess. District Mid rise office 400,000 S.F. Office retail 20,000 S.F. Mid dens.str.pk. 210,000 S.F.	Assess. District Mid rise office 400,000 S.F. Office retail 20,000 S.F. Mid dens.str.pk. 210,000 S.F.

STATION	CONSERVATIVE	MODERATE	AGGRESSIVE
SOUTHEAST LINE, CONTINUED			
ARAPAHOE	Land Lease	Land Lease	Joint Venture
	Com. retail 140,000 S.F. Luxury hotel 320,000 S.F.	Com. retail 140,000 S.F. Luxury hotel 320,000 S.F.	Mid dens.str.pk. 140,000 S.F. Luxury hotel 320,000 S.F.
		Assess. District	Assess. District
		Mid rise office 400,000 S.F. Office retail 20,000 S.F. Luxury hotel 320,000 S.F. Mid dens.str.pk. 300,000 S.F.	Mid rise office 400,000 S.F. Office retail 20,000 S.F. Luxury hotel 320,000 S.F. Mid dens.str.pk. 300,000 S.F.
DRY CREEK		Assess. District	Assess. District
		Campus office 100,000 S.F. Mid dens.srf.pk. 70,000 S.F.	Mid rise office 175,000 S.F. Mid dens.str.pk. 122,500 S.F.
			Land Lease
			Mid rise office 175,000 S.F. Mid dens.str.pk. 122,500 S.F.
COUNTY LINE ROAD		Assess. District	Assess. District
		Campus office 100,000 S.F. Mid dens.srf.pk. 70,000 S.F.	Mid rise office 175,000 S.F. Mid dens.str.pk. 122,500 S.F.
			Land Lease
			Mid rise office 175,000 S.F. Mid dens.str.pk. 122,500 S.F.

STATION	CONSERVATIVE	MODERATE	AGGRESSIVE
SANTA FE LINE			
W. EVANS	Lease Concession	Lease Concession	Lease Concession
	2,000 S.F.	2,000 S.F.	2,000 S.F.
ENGLEWOOD	Land Lease	Land Lease	Land Lease
	Com. retail 50,000 S.F. Mid dens.srf.pk. 22,500 S.F.	Com. retail 50,000 S.F. Mid dens.srf.pk. 22,500 S.F.	Com. retail 90,000 S.F. Mid dens. res. 42,000 S.F. Mid dens.srf.pk. 40,500 S.F.
		Tax Incr. Fin.	Tax Incr. Fin.
		Com. retail 30,000 S.F. Mid dens.srf.pk. 22,500 S.F.	Corporate hotel 30,000 S.F. Mid dens.srf.pk. 22,500 S.F.
W. BELLEVIEW			Tax Incr. Fin.
			Low rise office 30,000 S.F. Neighbrhd retail 20,000 S.F. Mid dens. res. 52,500 S.F. Mid dens.srf.pk. 28,500 S.F.
LITTLETON	Lease Concession	Lease Concession	Lease Concession
	3,000 S.F.	3,000 S.F.	3,000 S.F.
RIDGE	Lease Concession	Lease Concession	Lease Concession
	3,000 S.F.	3,000 S.F.	3,000 S.F.
W. MINERAL	Land Lease	Land Lease	Land Lease
	Campus office 90,000 S.F. Mid dens.str.pk. 63,000 S.F.	Campus office 90,000 S.F. Mid dens.str.pk. 63,000 S.F.	Campus office 90,000 S.F. Mid dens.str.pk. 63,000 S.F.

STATION	CONSERVATIVE	MODERATE	AGGRESSIVE
NORTH LINE			
BROADWAY			Land Lease Campus office 90,000 S.F. Mid dens.str.pk. 43,900 S.F.
84th AVENUE			Land Lease Campus office 35,000 S.F. Mid dens.str.pk. 15,000 S.F. Mid dens.srf.pk. 27,600 S.F.
88th AVENUE			Land Lease Low rise office 35,000 S.F. Com. retail 15,000 S.F. Mid dens.srf.pk. 27,600 S.F.
THORNTON		Land Lease Low rise office 30,000 S.F. Com. retail 15,000 S.F. Mid dens.srf.pk. 32,000 S.F.	Land Lease Low rise office 30,000 S.F. Com. retail 15,000 S.F. Mid dens.srf.pk. 32,000 S.F.
NORTHGLENN			Turnkey Regional retail 100,000 S.F. Station 20,000 S.F.
WAGON ROAD	Land Lease Low rise office 30,000 S.F. Com. retail 15,000 S.F. Mid dens.srf.pk. 32,000 S.F.	Land Lease Low rise office 30,000 S.F. Com. retail 15,000 S.F. Mid dens.srf.pk. 32,000 S.F.	Land Lease Campus office 90,000 S.F. Com. retail 30,000 S.F. Mid dens.str.pk. 63,000 S.F.

STATION	CONSERVATIVE	MODERATE	AGGRESSIVE
TURNPIKE LINE			
PECOS	Land Lease Neighbrhd. ret. 5,000 S.F. Low dens. srf.pk. 3,750 S.F.	Land Lease Com. retail 15,000 S.F. Low dens. srf.pk. 11,100 S.F.	Land Lease Com. retail 15,000 S.F. Low dens.srf.pk. 11,100 S.F.
W. 80TH	Lease Concession 2,000 S.F.	Lease Concession 2,000 S.F.	Lease Concession 2,000 S.F.
HALLACK JUNCTION			Turnkey Regional retail 100,000 S.F. Facility 20,000 S.F.
W. 96TH	Lease Concession 2,000 S.F.	Lease Concession 2,000 S.F.	Land Lease Com. retail 30,000 S.F. Low dens.srf.pk. 22,500 S.F.
W. 104TH	Lease Concession 2,000 S.F.	Lease Concession 2,000 S.F.	Land Lease Com. retail 30,000 S.F. Low dens.srf.pk. 22,500 S.F.
W. 112TH	Land Lease Neighbrhd. ret. 5,000 S.F. Mid dens.srf.pk. 3,750 S.F.	Land Lease Neighbrhd. ret. 5,000 S.F. Mid dens.srf.pk. 3,750 S.F.	Land Lease Com. retail 30,000 S.F. Low dens.srf.pk. 22,500 S.F.
BROOMFIELD	Land Lease Campus office 90,000 S.F. Mid dens.srf.pk. 54,000 S.F.	Land Lease Campus office 90,000 S.F. Mid dens.srf.pk. 54,000 S.F.	Land Lease Campus office 90,000 S.F. Mid dens.srf.pk. 54,000 S.F.

STATION	CONSERVATIVE	MODERATE	AGGRESSIVE
WEST LINE			
SPORTS COMPLEX			Turnkey Corporate hotel 300,000 S.F. Station 20,000 S.F.
W. 8TH			Assess. District Mid rise office 300,000 S.F. Mid dens.str.pk. 195,000 S.F.
COLD SPRING	Land Lease Campus office 90,000 S.F. Mid dens.srf.pk. 54,000 S.F.	Joint Venture Campus office 90,000 S.F. Mid dens.srf.pk. 54,000 S.F.	Joint Venture Mid rise office 200,000 S.F. Mid dens.str.pk. 97,500 S.F.
EASTLINE			
6TH AVENUE			Land Lease Low rise office 30,000 S.F. Com. retail 18,000 S.F. Low dens.srf.pk. 27,000 S.F.
AURORA	Land Lease Campus office 90,000 S.F. Mid dens.srf.pk. 54,000 S.F.	Tax Incr. Fin. Campus office 90,000 S.F. Com. retail 30,000 S.F. Low dens.srf.pk. 76,500 S.F.	Tax Incr. Fin. Campus office 90,000 S.F. Com. retail 30,000 S.F. Low dens.srf.pk. 76,500 S.F.

STATION	CONSERVATIVE	MODERATE	AGGRESSIVE
WADSWORTH LINE			
ARVADA		Tax Incr. Fin. Low rise office 30,000 S.F. Neighbrhd retail 20,000 S.F. Low dens.srf.pk. 33,000 S.F.	Tax Incr. Fin. Low rise office 30,000 S.F. Neighbrhd retail 20,000 S.F. Low dens.srf.pk. 33,000 S.F.
LAKEWOOD	Land Lease Mid rise office 175,000 S.F. Mid dens.str.pk. 122,500 S.F.	Joint Venture Mid rise office 175,000 S.F. Mid dens.str.pk. 122,500 S.F.	Joint Venture Mid rise office 175,000 S.F. Mid dens.str.pk. 122,500 S.F. Tax Incr. Fin. Mid rise office 1,200,000 S.F. Regional retail 1,700,000 S.F. Mid dens. res. 3,465,000 S.F. Mid dens.str.pk. 840,000 S.F.
DOWNTOWN STATIONS			
METRO		Assess. District Regional retail 120,000 S.F.	Land Lease Regional retail 120,000 S.F.
CONVENTION CENTER		Assess. District High rise office 1,000,000 S.F. Office retail 20,000 S.F. Luxury hotel 300,000 S.F.	Air Rights Lease High rise office 1,000,000 S.F. Office retail 20,000 S.F. Luxury hotel 300,000 S.F.

STATION	CONSERVATIVE	MODERATE	AGGRESSIVE
DOWNTOWN STATIONS, CONTINUED			
CIVIC CENTER		J/V Air Rts Lease Office retail 20,000 S.F. Luxury hotel 300,000 S.F.	J/V Air Rts Lease Office retail 20,000 S.F. Luxury hotel 300,000 S.F.
SKYLINE		Assess. District High rise office 200,000 S.F. Hi dens.str. pk. 70,000 S.F.	Air Rights Lease High rise office 200,000 S.F. Hi dens.str. pk. 70,000 S.F.

Appendix C

Meetings Held

During the course of the study, meetings were held with the following:

1) John Evans, Jr.
   President, Walter S. Cheesman Realty Company
   October 26, 1982

2) Richard C. D. Fleming
   President, The Denver Partnership, Inc.
   April 16, 1982

3) George Gatseos
   Senior Vice President, Frederick Ross Co
   October 26, 1982

4) Lloyd Goff
   President, Goff Corporation
   October 26, 1982

5) Robert Inman
   Executive Vice President, Frederick Ross Company
   April 16, 1982

6) Ralph Jackson
   Director, Office of Program Analysis, Denver Regional Transportation District
   October 25, 1982

7) Rex Jennings
   President, Denver Chamber of Commerce
   October 26, 1982

8) Richard A. Kirk
   President, United Bank of Denver
   April 16, 1982

9) John Madden
   President, The Madden Company

10) J. Lee Sammons
    Senior Vice President, Hammer, Siler, George Associates

11) George J. Scheuernstuhl, P.E.
    Director, Transportation Services, Denver Regional Council of Governments
    October 26, 1982

12) Jim H. Stanfield
President, The District Management Group, Inc.
October 25 1982

13) Chuck Stevenson
President, Denver West, Ltd.
October, 1982

14) Michael Tophin
Vice President, Gerald Hines Interests
October 26, 1982

15) Ken Torpe
Director, Colorado Department of Highways
October 25, 1982

16) George Wallace
Denver Technical Center
October 25, 1982

17) Robert Watson
Managing Partner, Trammel-Crow Company
April 16, 1982

DOT-I-83-36

TECHNOLOGY SHARING

SPECIAL STUDIES IN TRANSPORTATION PLANNING (SSTP)

PROGRAMS OF THE U.S. DEPARTMENT OF TRANSPORTATION